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THE NAEP 1998 TECHNICAL REPORT

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THE NAEP 1998 TECHNICAL REPORT

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INTRODUCTION¹

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The 1998 National Assessment of Educational Progress (NAEP) monitored the performance of students in United States schools in the subject areas of reading, writing, and civics. The national main sample involved public- and nonpublic-school students who were in grades 4, 8, or 12. State assessments were also conducted at grades 4 and 8 in reading and at grade 8 in writing. Nearly 448,000 students were assessed in the national and state samples. Although a special study was done comparing 1998 civics results with those for 1988, no NAEP long-term trend (LTT) assessments of reading, writing, math, or science national samples were conducted in 1998.

For previous assessments in which there were both national (main and/or long-term trend) and state components, separate technical reports were produced for the national assessment and each state component (subject area). For 1998, this publication contains technical information about both the state and national components. Information common to both national and state components is presented in the first two parts, while later chapters contain detailed information for each subject area and for the national and state components.

The purpose of this technical report is to provide details on the instrument development, sample design, data collection, and data analysis procedures for the 1998 assessment. This document provides information necessary to show adherence to the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2000) and to the Educational Testing Service (ETS) *Standards for Quality and Fairness* (Educational Testing Service [ETS], 1987). Detailed substantive results are not presented here but can be found in a series of NAEP reports covering the status of and trends in student performance; several additional reports provide information on how the assessment was designed and implemented. The reader is directed to the following reports for 1998 results:

- *NAEP 1998 Civics Report Card for the Nation* (Lutkus, Weiss, Campbell, Mazzeo, & Lazer, 1999)
- *NAEP 1998 Reading Report Card for the Nation and the States* (Donahue, Voelkl, Campbell, & Mazzeo, 1999)
- *NAEP 1998 Reading Report for {each state}* (Ballator & Jerry, 1999a)
- *NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald, Persky, Campbell, & Mazzeo, 1999)
- *NAEP 1998 Writing Report for {each state}* (Ballator & Jerry, 1999b)

¹ James E. Carlson, Nancy L. Allen, and John R. Donoghue were responsible for psychometric and statistical analyses of NAEP for the 1998 assessment.

The *Report Card* publications highlight results for the nation, states, and selected subgroups. The frameworks for the 1998 assessment content areas are in:

- *Civics Framework for the 1998 National Assessment of Educational Progress* (National Assessment Governing Board [NAGB], 1996a)
- *Reading Framework for the National Assessment of Educational Progress: 1992-1998* (NAGB, 1990)
- *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress* (NAGB, 1996b)

Other technical information is in:

- *Sampling Activities and Field Operations for 1998 NAEP* (Gray, Krenzke, & Wallace, 2000)
- *Report on Data Collection Activities for All States* (Westat, 1998)
- *1998 NAEP Assessment Report of Processing and Professional Scoring Activities* (National Computer Systems, 1998)

The *NAEP 1998 Reading Data Companion* (Rogers, Kokolis, Stoeckel, & Kline, 2000), the *NAEP 1998 Writing Data Companion* (Rogers, Kokolis, Stoeckel, & Kline, 2000), and the *NAEP 1998 Civics Data Companion* (Rogers, Kokolis, Stoeckel, & Kline, 2000) provide information needed to analyze the 1998 NAEP results, and *The NAEP Guide: A Description of the Content and Methods of the 1997 and 1998 Assessments* (Calderone, King, & Horkay, 1997) contains a description of the content and methods used in both the main and state components of the 1998 assessments.

Many of the NAEP reports, including summary data tables, are available on the Internet at <http://nces.ed.gov/nationsreportcard>. For information about ordering printed copies of these reports, go to the Department of Education web page <http://www.ed.gov/pubs/edpubs.html>, call toll free 1-877-4ED PUBS (877-433-7827), or write to:

Education Publications Center (ED Pubs)
U.S. Department of Education
P.O. Box 1398
Jessup, MD 20794-1398

The *Frameworks* are descriptions and plans for subject-area assessment content. For ordering information on these reports, write to:

National Assessment Governing Board
800 North Capitol Street NW
Suite 825
Washington, DC 20002

The *Frameworks* and other NAGB documents are also available through the Internet at <http://www.nagb.org>.

AN OVERVIEW OF NAEP ANALYSIS CHANGES OVER TIME

NAEP strives to maintain its links to the past and still implement innovations in measurement technology. To that end, long-term trend samples use the same methodology and population definitions as in previous assessments. Main assessment samples incorporate innovations associated with new NAEP technology and address current educational issues. Both long-term trend samples and main assessment samples are nationally represented. The main assessment sample data are used primarily for analyses involving the current student population, but also to estimate short-term trends for a small number of recent assessments. Some of the assessment materials administered to the main assessment samples are periodically administered to state as well as national samples. In continuing to use this two-tiered approach, NAEP reaffirms its commitment to continuing to study trends while at the same time implementing the latest in measurement technology and educational advances.

In succeeding assessments, many of the innovations that were implemented for the first time in 1988 were continued and enhanced. For example, a focused balanced incomplete block (focused BIB) booklet design was used in 1988. Since that time, either focused BIB or focused partially balanced incomplete block (focused PBIB) designs have been used. Variants of the focused PBIB were used with the 1998 main national and state assessment samples in reading and writing, and a focused BIB was used in the 1998 main national civics assessment. Both the BIB and PBIB designs provide for booklets of interlocking blocks of items, so that no student receives too many items, but all receive groups of items that are also presented to other students. The booklet design is focused, because each student receives blocks of cognitive questions in the same subject area. The focused BIB or PBIB design allows for improved estimation within a particular subject area, and estimation continues to be optimized for groups rather than individuals.

Since 1984, NAEP has applied the plausible values approach to estimating means for demographic as well as curriculum-related subgroups. Scale score estimates were drawn from a posterior distribution that was based on an optimum weighting of two sets of information: the student's responses to cognitive questions, and his or her demographic and associated educational process variables. This Bayesian procedure was developed by Mislevy (1991). An improvement that was implemented first in 1988 and refined for the 1994 assessment continues to be used. This is a multivariate procedure that uses information from all scales within a given subject area in the estimation of the scale score distribution on any one scale in that subject area.

To shorten the timetable for reporting results, the period for national main assessment data collection was shortened in 1992, 1994, 1996, and 1998 from the five-month period (January through May) used in 1990 and earlier assessments to a three-month period in the winter (January through March, corresponding to the period used for the winter half-sample of the 1990 national main assessment).

A major improvement introduced in the 1992 assessment, and continued in succeeding assessments, was the use of the generalized partial-credit model for item response theory (IRT) scaling. This allowed the incorporation of constructed-response questions that are scored on a multipoint rating scale into the NAEP scale in a way that utilizes the information available in each response category.

One important innovation in reporting the assessment data that has been continued since 1990 is the use of simultaneous comparison procedures in carrying out significance tests for the differences across assessment years. Methods such as the Bonferroni procedure allow one to control for the type I error rate for a fixed number of comparisons. Beginning with the 1996 assessment, a procedure providing more powerful statistical tests that control for the false discovery rate (FDR) as applied by Benjamini and Hochberg (1994) was used for comparisons involving a large number of groups (e.g., state comparisons). In 1998 the FDR procedure was used for all comparisons in NAEP. While the Bonferroni procedure controls the probability of making even one false rejection, the FDR procedure used in NAEP controls

the expected proportion of falsely rejected hypotheses. The Bonferroni procedure is more conservative than the Benjamini procedure for large families of comparison.

ORGANIZATION OF THE TECHNICAL REPORT

This report begins with the details of the design of the 1998 main and state assessments, summarized in Chapter 1. Chapters 2 through 8 provide an overview of the objectives and frameworks for items used in the assessment, the sample selection procedures, the administration of the assessment in the field, the processing of the data from the assessment instruments into computer-readable form, the professional scoring of constructed-response items, and the methods used to create a complete NAEP database.

The 1998 NAEP data analysis procedures are described in Chapters 9 through 13. Chapter 9 provides a summary of the analysis steps. Subsequent chapters provide a general discussion of the weighting and variance estimation procedures used in NAEP, an overview of NAEP scaling methodology, and information about the conventions used in significance testing and reporting NAEP results.

Details of the reading assessment data analysis are provided in Chapters 14 through 17. These chapters describe assessment frameworks and instruments, student samples, items, booklets, scoring, DIF analysis, weights, and item analyses of the main and state assessments. Similar details are provided for the writing assessment (Chapters 18 through 21) and the civics assessment (Chapters 22 through 24).

The appendices provide detailed information on a variety of procedural and statistical topics. Appendices I and J explain how achievement levels for the subject areas were set by the National Assessment Governing Board (NAGB). The last appendix (Appendix K) provides lists of committee members who contributed to the development of objectives and items.

Chapter 1

OVERVIEW OF PART I: THE DESIGN AND IMPLEMENTATION OF THE 1998 NAEP¹

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1.1 INTRODUCTION

The 1998 National Assessment of Education Progress (NAEP) collected information on the knowledge and skills of American students in reading, writing, and civics. The 1998 NAEP assessment included three components: the national main assessments of reading, writing, and civics; the state assessments of reading and writing; and national special assessments of aspects of writing and civics. The main assessments were administered to national samples of students. No long-term trend (LTT) assessment was included in 1998. The basis for the information collected for the national main assessments was a complex sample survey involving nearly 448,000 students, consisting of national samples of public- and nonpublic-school students who were in grades 4, 8, and 12. Additional NAEP data came from the state assessment program, which in 1998 assessed about 300,000 students in reading at grades 4 and 8 and in writing at grade 8. Grade 4 state samples included public-school students from 40 states, the District of Columbia, the Department of Defense Dependent Elementary and Secondary Schools (DoDEA/DDESS²), the Department of Defense Dependents Schools (DoDEA/DoDDS²), and Virgin Islands, as well as nonpublic-school students from 29 states and Virgin Islands. Grade 8 state samples for reading included public-school students from 37 states, the District of Columbia, DoDEA/DDESS, DoDEA/DoDDS, and Virgin Islands, as well as nonpublic-school students from 23 states and Virgin Islands. Grade 8 state samples for writing included public-school students from 36 states, the District of Columbia, DoDEA/DDESS, DoDEA/DoDDS, and Virgin Islands, as well as nonpublic-school students from 23 states and Virgin Islands. Results for a few of these states and jurisdictions were not reported because reporting guidelines were not met.

This chapter describes the design for the 1998 main and state assessments and gives an overview of the steps involved in its implementation, from the planning stage through the creation of edited data files. The major components of the implementation are presented here with references to other chapters in Part I that provide greater detail on each aspect of the assessment. The procedures used for the analysis of the data are summarized in the overview to Part II. The remaining chapters, in Parts III, IV, and V, detail the data analysis by each subject area. Excluded are details of the analyses of special studies of 50-minute writing, classroom-based writing, 1988-to-1998 trends in civics, and high school transcripts. The results from and analyses used in these special studies will be described in separate documents.

¹ Nancy L. Allen, James E. Carlson, and John R. Donoghue were responsible for the psychometric and statistical analysis of the 1998 national and state NAEP data. The authors are indebted to the authors of Chapters 2 through 8 for portions of this chapter.

² DoDEA is the Department of Defense Education Activity. Within the DoDEA, two jurisdictions are reported for NAEP: one for domestic schools (Department of Defense Domestic Dependent Elementary and Secondary Schools [DDESS]) and one for overseas schools (Department of Defense Dependents Schools [DoDDS]).

The organization of this chapter, and of Part I, is as follows:

- Section 1.2 provides an overview of the NAEP design for 1998 and includes a description of the constituent samples. To provide background information, the section also includes the assessment schedule from the inception of NAEP in 1969 through the 1998 assessment.
- Section 1.3 provides a summary of the development of the objectives for each subject area in the assessment and a description of the development and review of the items written to fit those objectives. Details and results of the objective and item development processes appear in Chapters 2, 14, 18, and 22.
- Section 1.4 provides a summary of the sampling design used for the 1998 national and state assessments, with a fuller description provided in Chapters 3 (national) and 4 (state).
- Section 1.5 includes a discussion of the assignment of the cognitive and background questions to assessment booklets and a description of the complex block designs that were the basis for assigning cognitive items to assessment booklets and assessment booklets to individuals. Chapters 14, 18, and 22 provide detailed descriptions of the assessment booklets for the subject areas of reading, writing, and civics, respectively.
- Section 1.6 provides a summary of the field administration procedures, including the processes of training field administrators, attaining school cooperation, administering the assessment, and conducting quality control. Further details appear in Chapter 5.
- Section 1.7 includes a description of the flow of data from the receipt of the assessment materials through data entry, validation, and resolution to the creation of edited data files. Chapter 6 provides a detailed description of the process.
- Section 1.8 contains a discussion of the professional scoring of students' responses to the constructed-response items in the assessment. Details of the process are given in Chapter 7.
- Section 1.9 provides a summary of the creation of the database, the quality control of data entry, and lists the 1998 database products. This section also includes a description of the use of the Internet for dissemination of NAEP information. Further details appear in Chapter 8.

1.2 THE 1998 NAEP DESIGN

A major purpose of NAEP is the reliable measurement of trends in educational achievement over time. To do this well, confounding effects due to changes from one assessment to the next in assessment instrumentation or in assessment procedures must be minimized. This implies a stability in the measurement process over time. At the same time, the assessment must remain current by allowing the introduction of new curriculum concepts and changes in educational priorities and by permitting the use of new measurement technology. The objectives for an assessment are determined through a consensus process in which committees of subject-matter experts, scholars, and citizens representing many diverse

constituencies and points of view are assembled to determine the educational goals that students should achieve. Satisfying these objectives often requires changes in assessment instrumentation and methodology.

In order to meet the goals of measuring trends reliably and responding to changes in the current thinking about subject areas, NAEP has instituted a multicomponent assessment system where each component is itself a set of assessments designed to accomplish a specific goal. There are four components in the NAEP design: national main assessments, state assessments, national long-term-trend assessment in reading, writing, math and science, and special assessments. The national main and state assessments respond to changes in curriculum on a regular basis, as compared to the long-term trend assessments, which were administered in 1996 and will be administered again in 1999. The instruments that measure long-term trends are never changed and measure longer-term trends in a content domain that is constant over the years.

Several improvements were made in the design of NAEP in the 1984 and succeeding assessments. Until the 1984 assessment, NAEP was administered using matrix sampling and tape recorders; that is, by administering booklets of exercises using an aurally presented stimulus that paced groups of students through the individual assessment exercises in a common booklet. In the 1984 assessment, balanced incomplete block (BIB) spiraling, which does not include aural pacing, was introduced in place of taped matrix sampling. BIB spiraling is defined in Section 1.5 of this chapter. The NAEP design now includes sampling grade populations for national main and state assessments, as well as the age populations that NAEP originally assessed for long-term trend assessments. The definitions of student age and the time of year in which the assessment takes place have been made uniform so that students in the fourth, eighth, and twelfth grades are assessed. To shorten the timetable for reporting results, the period for national main data collection was decreased in assessments since 1990 from the five-month period used in 1990 to a three-month period in the winter (corresponding to the period used for the winter half-sample of the 1990 national assessment). To enhance the coverage of the subject areas assessed, the number of items measuring knowledge and skills was increased for NAEP assessments since 1990.

A special feature of the 1998 national main and state assessments of reading was the collection of data from students who were offered accommodations and from students who were not, while using the new rules (introduced in 1996) for inclusion of students with disabilities (SD) and limited English proficient (LEP) students in NAEP assessments. Figure 1-1 contains the layout of the pieces of the sample collected for each grade of the national main and state assessments of reading. In one sample (sample type 2 in Figure 1-1), accommodations were not offered to students. In the other sample (sample type 3 in Figure 1-1), students were offered accommodations. Both sample type 2 and sample type 3 schools selected for participation in the 1998 assessments used the new inclusion rules to determine whether students should be included in the assessment.

For all subject areas, the inclusion rules were applied and accommodations were offered only when a student had been categorized in his or her individualized education program (IEP) as a student with disabilities (SD) or as a limited English proficient (LEP) student; all other students were asked to participate in the assessment. The accommodations provided by NAEP in the national main and state assessments were meant to match those specified in the student's IEP or those ordinarily provided in the classroom for testing situations. The most common accommodation was extended time.

For the 1998 reading national main and state assessments, the sample of students selected for most analysis and reporting purposes consisted of students from two groups: those who were not categorized as SD or LEP students (A_2 and A_3 in Figure 1-1); and those who were categorized as SD or LEP students and who attended schools providing no accommodations (B_2 in Figure 1-1). Test results for students who were offered accommodations (B_3 in Figure 1-1) were not included in the analysis or

reporting of the national main and state assessment results for reading, although the results for students offered accommodations were studied in follow-up analyses. The advantage of the selected reporting sample is that it preserves trend with previous assessments and it makes use of most of the data from the assessment. For the writing and civics assessments, NAEP used the new inclusion rules and provided accommodations to identified students (sample type 3 in Figure 1-1). The information in Chapters 3, 4, and 5 applies to schools and students in all of the sample types, while the data analysis chapters reflect schools and students in reporting samples only.

Figure 1-1
Subsamples of the 1998 NAEP Reading Assessment

GROUPS OF STUDENTS	GROUPS OF SCHOOLS	
	Sample Type 2 - NO ACCOMMODATIONS -	Sample Type 3 - ACCOMMODATIONS -
NOT SD/LEP ¹	A ₂	A ₃ ²
INCLUDED SD/LEP ¹	B ₂ ²	B ₃ ²
EXCLUDED SD/LEP ¹	C ₂ ³	C ₃ ³

¹ Students with Disabilities/Limited English Proficient
² Results for students in subsample B₃ were not reported in *NAEP 1998 Reading: Report Card for the Nation and the States*.
³ Students in subsamples C₂ and C₃ were not included in the assessment.

NAEP’s design for 1998 required collecting 19 different samples in order to conduct the assessments. The various samples collected and reported for the 1998 assessment are summarized in Table 1-1.

Table 1-1
*NAEP 1998 Student Samples**

Sample	Booklet IDs	Cohort Assessed	Reporting Sample Size[†]
4 [Reading–Main]	R1-R16	Grade 4	7,672
8 [Reading–Main]	R1-R18, R21	Grade 8	11,051
12 [Reading–Main]	R1-R18, R21-R22	Grade 12	12,675
4 [Reading–State]	R1-R16	Grade 4	112,138 [‡]
8 [Reading–State]	R1-R18,R21	Grade 8	94,429 [‡]
4 [Writing–Main]	W201-W240	Grade 4	19,816
8 [Writing–Main]	W201-W240	Grade 8	20,586
12 [Writing–Main]	W201-W237	Grade 12	19,505
8 [Writing–50-Minute]	W241-W243	Grade 8	6,009
12 [Writing–50-Minute]	W241-W243	Grade 12	5,804
4 [Writing–Classroom Study]	— [§]	Grade 4	2,395 ^{**}
8 [Writing–Classroom Study]	— [§]	Grade 8	2,480 ^{**}
8 [Writing–State]	W201-W240	Grade 8	97,589 [‡]
4 [Civics–Main]	C301-C318	Grade 4	5,948
8 [Civics–Main]	C301-C332	Grade 8	8,212
12 [Civics–Main]	C301-C332	Grade 12	7,763
4 [Civics–Special Trend]	CT340 ^{††}	Grade 4	2,088
8 [Civics–Special Trend]	CT340 ^{††}	Grade 8	2,055
12 [Civics–Special Trend]	CT340 ^{††}	Grade 12	2,193
Total without [Writing–Classroom Study][†]			438,164

* The 1998 assessment was administered January 5–March 27, 1998. Final makeup sessions were held March 30–April 3, 1998.

[†] The reporting samples for reading include students in groups A₂, A₃, and B₂ in Figure 1-1. Reporting and assessed samples for writing and civics include students designated by A₃ and B₃.

[‡] This sample size includes counts of students from distinct samples for each state or jurisdiction participating in the assessment.

[§] No booklets were administered in the [Writing–Classroom Study]; instead, examples of classroom-based writing were collected from students participating in this study.

^{**} Because some of the students in this study were included in the [Writing–Main] and [Writing–50-Minute] samples and others were not included in these samples, the students in the [Writing–Classroom Study] who are counted here are not included in the reporting sample size total.

^{††} These booklets were also administered as a part of the 1988 assessment of civics.

Each row of Table 1-1 corresponds to a particular sample and each column of the table indicates the following major features of that sample:

1. *Sample* is the sample identifier. The first part of the sample code is a number (the grade) representing the student cohort included in the sample; the second part, in brackets, denotes the specific sample type. For example, 4 [Reading–Main] is a national main assessment reading sample for grade 4. A full description of the purposes for the various sample types is given in Section 1.2.1.
2. *Booklet IDs* give the identifier numbers for the booklets used for the assessment of the particular sample.
3. The *cohort assessed* denotes the age, grade, or age/grade of the population being sampled. For example, a *grade 4* cohort represents students who are in the fourth grade; an *age 17* cohort consists of students (in any grade) who are 17 years old. Samples for the 1998 national main assessments were selected on the basis of grade only. The traditional NAEP samples used in long-term trend estimation were defined by age only. The definitions of age, and thus the corresponding grade, have changed in ways that are described in Section 1.2.2.
4. The *reporting sample size* is the number of students in the sample who were administered the assessment and whose results were used in the NAEP subject-area reports. SD/LEP students who were excluded from the assessment (C_2 and C_3 in Figure 1-1) are not included in the reporting samples. The reporting samples for the reading assessment include students who were not categorized as SD or LEP students (A_2 and A_3 in Figure 1-1), as well as students who were categorized as SD or LEP students and attended schools where no accommodations were offered (B_2 in Figure 1-1). The reporting sample for the writing and civics assessments include students who were not categorized as SD or LEP students (A_3 in Figure 1-1) and students who were categorized as SD or LEP students and attended schools where accommodations were offered (B_3 in Figure 1-1).

1.2.1 The 1998 NAEP Samples

The NAEP samples in 1998 consisted of three types: the main samples from the national assessment, samples from the state assessment, and the special studies samples from the national assessment. No data from long-term trend (LTT) for reading, writing, math, or science samples were collected in 1998.

The National Main Assessment Samples. The national main NAEP samples are labeled in Table 1-1 as [Reading–Main], and [Writing–Main], and [Civics–Main]. The samples used complex spiraling procedures (defined in Section 1.5), and were intended to form the basis for future assessments. Each sample was assessed in the winter period. In these samples, only grade populations were sampled, although age/grade populations were assessed in previous assessment years for reading. The national main assessment samples, and their purposes, are as follows:

[Reading–Main] are grades 4, 8, and 12 national reading assessment samples used for measuring national reading achievement in 1998. The grade 4 and 8 samples also provided the comparison groups for the 1998 state assessment of reading in grades 4 and 8 [Reading–State]. These samples used print administration.

[Writing–Main] are grades 4, 8, and 12 national writing assessment samples used for measuring national writing achievement in 1998. The grade 8 samples also provided the comparison groups for the 1998 state assessment of writing in grade 8 [Writing–State]. These samples used print administration.

[Civics–Main] are grades 4, 8, and 12 civics national assessment samples used for measuring national civics achievement in 1998. Civics was not part of the state assessment in 1998. These samples used print administration.

The State Assessment Samples. In Table 1-1, [Reading–State] and [Writing–State] refer to samples of public- and nonpublic-school students from each of the states and jurisdictions participating in the NAEP 1998 state assessments of reading (at grades 4 and 8) and writing (at grade 8). The assessment booklets were the same print-administered booklets as those used for the matching national samples [Reading–Main] and [Writing–Main], but the administrative procedures varied from that of the main assessment in that state personnel collected the data.

The Special Studies Samples. Three sets of samples were collected as part of special NAEP studies. The samples used special innovative procedures to allow the study of specific aspects of writing and civics. Each sample was assessed in the winter period. In these samples, only grade populations were sampled. The special studies samples, and their purposes, are as follows:

[Writing–50-Minute] are samples of specially selected students in grades 8 and 12 who were administered 50-minute writing blocks in sessions separate from those in which 25-minute blocks were administered.

[Writing–Classroom Study] are samples of grade 4 and grade 8 students in intact classrooms within schools that participated in the national main writing assessment. Analyses of the data from the classroom-based writing study are described in the special report of results from this study. They are not described in this report.

[Civics–Special Trend] are samples of specially selected students in grades 4, 8, and 12 who were administered a booklet from the 1988 civics assessment.

In addition to these special study samples for which different analyses were conducted, the High School Transcript Study based on the full sample of twelfth grade students required special analyses. Westat conducted this study and is responsible for analysis of the data. Although the results of this study are not described in this technical report, documentation is available through Westat in Rockville, Maryland.

1.2.2 NAEP Assessments Since 1969

Table 1-2 shows the subject areas, grades, and ages assessed since the NAEP project began in 1969. As can be seen, in addition to the 1998 subject areas of reading, writing, and civics, several other subject areas have been assessed over the years—mathematics, science, social studies, U.S. history, citizenship, geography, literature, music, career development, art, and computer competence. Many subject areas are reassessed periodically to measure trends over time.

Table 1-2
National Assessment of Educational Progress
Subject Areas, Grades, and Ages Assessed: 1969–1998

Assessment Year	Subject Area(s)	Grades/Ages Assessed										
		Grade 3	Grade 4	Age 9	Grade 7	Grade 8	Age 13	Grade 11	Grade 12	Age 17	Age 17OS*	Adult
1969–70	Science			X			X			X	X	X
	Writing			X			X			X	X	X
	Citizenship			X			X			X	X	X
1970–71	Reading			X			X			X	X	X
	Literature			X			X			X	X	X
1971–72	Music			X			X			X	X	X
	Social Studies			X			X			X	X	X
1972–73	Science			X			X			X	X	X
	Mathematics			X			X			X	X	X
1973–74	Career and Occupational Dvlpt.			X			X			X	X	X
	Writing			X			X			X	X	
1974–75	Reading			X			X			X	X	
	Art			X			X			X	X	
1975–76	Citizenship/Social Studies			X			X			X	X	
	Mathematics†						X			X	X	
1976–77	Science			X			X			X		
	Basic Life Skills†									X		
	Health†										X	
	Energy†										X	
	Reading†										X	
1977–78	Mathematics			X			X			X		
	Consumer Skills†									X		
1978–79	Art			X			X			X		
	Music			X			X			X		
	Writing			X			X			X		
1979–80	Reading			X			X			X	X	
	Literature			X			X			X	X	

* Age 17 students who had dropped out of school or had graduated prior to assessment.

† Small, special-interest assessments conducted on limited samples at specific grades or ages.

(continued)

Table 1-2 (continued)
National Assessment of Educational Progress
Subject Areas, Grades, and Ages Assessed: 1969–1998

Assessment Year [‡]	Subject Area(s)	Grades/Ages Assessed										
		Grade 3	Grade 4	Age 9	Grade 7	Grade 8	Age 13	Grade 11	Grade 12	Age 17	Age 17OS*	Adult
1981–82	Mathematics			X			X			X		
	Citizenship/Social Studies			X			X			X		
	Science [†]			X			X			X		
1983–84	Reading		X	X		X	X			X		
	Writing		X	X		X	X			X		
1985	Adult Literacy [†]											X
1986	Reading	X		X	X		X	X		X		
	Mathematics	X		X	X		X	X		X		
	Science	X		X	X		X	X		X		
	Computer Competence	X		X	X		X	X		X		
	U.S. History [†]							X		X		
	Literature [†]							X		X		
	Reading (long-term trend)		X	X		X	X	X		X		
	Mathematics (long-term trend)		X	X		X	X	X		X		
Science (long-term trend)		X	X		X	X	X		X			

[‡] It should be noted that somewhat different age definitions were used in the 1984, 1986, and 1988 assessments. In the 1984 assessments, the two younger ages were defined on a calendar-year basis, while the 17-year-olds were defined on an October 1 to September 30 basis. This resulted in modal grades of 4, 8, and 11. To allow for age cohorts that were exactly four years apart, in the 1986 national main assessment all ages were defined on an October 1 to September 30 basis, resulting in modal grades of 3, 7, and 11. Special studies (Kaplan et al., 1988) were conducted to measure the effect of the changes in age definition. Because of problems encountered in assessing third-graders, in 1988 the ages were defined on a calendar-year basis, with the modal grades being 4, 8, and 12. These were the age definitions used in the 1990, 1992, and 1994 math assessments.

* Age 17 students who had dropped out of school or had graduated prior to assessment.

[†] Small, special-interest assessments conducted on limited samples at specific grades or ages.

(continued)

Table 1-2 (continued)
National Assessment of Educational Progress
Subject Areas, Grades, and Ages Assessed: 1969–1998

Assessment Year [‡]	Subject Area(s)	Grades/Ages Assessed										
		Grade 3	Grade 4	Age 9	Grade 7	Grade 8	Age 13	Grade 11	Grade 12	Age 17	Age 17OS*	Adult
1988	Reading		X	X		X	X		X	X		
	Writing		X	X		X	X		X	X		
	Civics		X	X		X	X		X	X		
	U.S. History		X	X		X	X		X	X		
	Document Literacy [†]					X	X		X	X		
	Geography [†]								X	X		
	Reading (long-term trend)		X	X		X	X	X		X		
	Writing (long-term trend)		X	X		X	X	X		X		
	Mathematics (long-term trend)			X			X	X		X		
	Science (long-term trend)			X			X	X		X		
1990	Reading		X	X		X	X		X	X		
	Mathematics		X	X		X	X		X	X		
	Science		X	X		X	X		X	X		
	Reading (long-term trend)		X	X		X	X	X		X		
	Writing (long-term trend)		X	X		X	X	X		X		
	Mathematics (long-term trend)			X			X	X		X		
	Science (long-term trend)			X			X	X		X		
	Trial State Mathematics					X						
1992	Reading		X	X		X	X		X	X		
	Writing		X	X		X	X		X	X		
	Mathematics		X	X		X	X		X	X		
	Reading (long-term trend)		X	X		X	X	X		X		
	Writing (long-term trend)		X	X		X	X	X		X		
	Mathematics (long-term trend)			X			X	X		X		
	Science (long-term trend)			X			X	X		X		
	Trial State Mathematics		X			X						
Trial State Reading		X										

[‡] It should be noted that somewhat different age definitions were used in the 1984, 1986, and 1988 assessments. In the 1984 assessments, the two younger ages were defined on a calendar-year basis, while the 17-year-olds were defined on an October 1 to September 30 basis. This resulted in modal grades of 4, 8, and 11. To allow for age cohorts that were exactly four years apart, in the 1986 national main assessment all ages were defined on an October 1 to September 30 basis, resulting in modal grades of 3, 7, and 11. Special studies (Kaplan et al., 1988) were conducted to measure the effect of the changes in age definition. Because of problems encountered in assessing third-graders, in 1988 the ages were defined on a calendar-year basis, with the modal grades being 4, 8, and 12. These were the age definitions used in the 1990, 1992, and 1994 math assessments.

* Age 17 students who had dropped out of school or had graduated prior to assessment.

(continued)

Table 1-2 (continued)
National Assessment of Educational Progress
Subject Areas, Grades, and Ages Assessed: 1969–1998

Assessment Year [‡]	Subject Area(s)	Grades/Ages Assessed										
		Grade 3	Grade 4	Age 9	Grade 7	Grade 8	Age 13	Grade 11	Grade 12	Age 17	Age 17OS*	Adult
1994	Reading		X	X		X	X		X	X		
	U.S. History		X	X		X	X		X	X		
	Geography		X	X		X	X		X	X		
	Reading (long-term trend)		X	X		X	X	X		X		
	Writing (long-term trend)		X	X		X	X	X		X		
	Mathematics (long-term trend)			X			X			X		
	Science (long-term trend)			X			X			X		
Trial State Reading		X										
1996	Mathematics		X			X			X			
	Science		X			X			X			
	Reading (long-term trend)		X	X		X	X	X		X		
	Writing (long-term trend)		X	X		X	X	X		X		
	Mathematics (long-term trend)			X			X			X		
	Science (long-term trend)			X			X			X		
	State Mathematics		X			X						
State Science [†]					X							
1997	Music					X						
	Theatre					X						
	Visual Arts					X						
1998	Reading		X			X			X			
	Writing		X			X			X			
	Civics		X			X			X			
	State Reading		X			X						
	State Writing					X						

[‡] It should be noted that somewhat different age definitions were used in the 1984, 1986, and 1988 assessments. In the 1984 assessments, the two younger ages were defined on a calendar-year basis, while the 17-year-olds were defined on an October 1 to September 30 basis. This resulted in modal grades of 4, 8, and 11. To allow for age cohorts that were exactly four years apart, in the 1986 national main assessment all ages were defined on an October 1 to September 30 basis, resulting in modal grades of 3, 7, and 11. Special studies (Kaplan et al., 1988) were conducted to measure the effect of the changes in age definition. Because of problems encountered in assessing third-graders, in 1988 the ages were defined on a calendar-year basis, with the modal grades being 4, 8, and 12. These were the age definitions used in the 1990, 1992, and 1994 math assessments.

* Age 17 students who had dropped out of school or had graduated prior to assessment.

[†] Department of Defense Education Activity (DoDEA) schools were assessed at both grades 4 and 8. All other states and jurisdictions in the 1996 state science assessment were assessed at grade 8 only.

Since its inception, NAEP has assessed 9-year-olds, 13-year-olds, and in-school 17-year-olds, although the age definitions changed in 1986 and again in 1988. Because of budget restrictions, NAEP no longer routinely assesses out-of-school 17-year-olds or young adults. (A separate assessment of young adults of ages 21 to 25 was conducted in 1985 under a separate grant.) Currently, NAEP assesses fourth- and eighth-grade students in the national and state assessments, and twelfth-grade students in the national assessment. Between 1980 and 1996, assessments were administered bi-annually, rather than annually, due to funding restrictions. National (main and/or long-term trend) assessments are now conducted annually, and state assessments continue to be conducted bi-annually.

The table also indicates that in 1984, NAEP began gathering data by grade as well as by age, a practice that had been continued in national main assessments up to 1994; the 1996 and 1998 national main assessments included data gathered by grade only. It should be noted that somewhat different age definitions were used in the 1984, 1986, and 1988 assessments. In the 1984 assessment, the two younger ages were defined on a calendar-year basis, while the 17-year-olds were defined on an October 1 to September 30 basis. This resulted in modal grades of 4, 8, and 11. To allow for age cohorts that were exactly four years apart, in the 1986 national main assessment all ages were defined on an October 1 to September 30 basis, resulting in modal grades of 3, 7, and 11. Special studies (Kaplan, Beaton, Johnson, & Johnson, 1988) were conducted to measure the effect of the changes in age definition. Because of problems encountered in assessing third-graders, in 1988 the ages were redefined on a calendar-year basis, with the modal grades being 4, 8, and 12. These were the age definitions used in the 1990, 1992, and 1994 national main assessments.

1.3 DEVELOPMENT OF ASSESSMENT OBJECTIVES, ITEMS, AND BACKGROUND QUESTIONS

In 1998, NAEP conducted national assessments of students at all three grade levels in reading, writing, and civics. These assessments entailed the generation of a large number of cognitive items—items measuring knowledge and skills. In addition, a large number of background questions were asked of students. School, teacher, and instructional questions were asked of principals and teachers. Details on the item-development procedures for the 1998 national assessment are given in Chapter 2.

In addition to the cognitive items, several questionnaires were developed: a common student background questionnaire given to all assessed students of a given grade, a subject-specific background questionnaire, a school characteristics and policies questionnaire, and teacher questionnaires for teachers of fourth- and eighth-grade students in reading, writing, and civics. A questionnaire for which teachers or school officials provided information about students with disabilities (SD) or students with limited English proficiency (LEP) was also developed. Each of these questionnaires was developed through a broad-based consensus process.

All cognitive and background questions in the assessment underwent extensive reviews by subject-area and measurement specialists, as well as careful scrutiny to eliminate any potential bias or lack of sensitivity to any representative group. Further, the items were field tested on a group of students from across the nation. Based on the results of the field test, items were revised or modified as necessary and then again reviewed for bias. With the help of staff and outside reviewers, the instrument development committees selected the items to include in the assessment. After the items were selected and formed into the final groupings or blocks of items, they were carefully reviewed by the National Center for Education Statistics (NCES), the Office of Management and Budget (OMB), and the National Assessment Governing Board (NAGB).

The assessment instruments included multiple-choice items, constructed-response items scored dichotomously, constructed-response items scored polytomously, and cluster items in reading, writing, and civics. The constructed-response items were professionally scored as described in Chapter 7.

1.4 THE 1998 SAMPLE DESIGN

The sample for the 1998 NAEP assessment was selected using a complex multistage sample design. The multistage sample design includes the sampling of students from selected schools within geographic areas (for national NAEP only), called primary sampling units (PSUs), across the United States. Additional stages in the design are the assignment of assessment sessions to schools and the assignment of students to sessions. Apart from the assignment of two types of samples in the reading assessment (one that provided accommodations to certain students and one that did not), the general sampling design for the 1998 assessment was similar in most respects to that of 1996. The design is described in detail by Westat, the firm contracted by NCES to select the sample, in the *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000). The following sections provide an overview of the steps used to draw NAEP samples using the multistage sample design. Further details are given in Chapters 3 and 4. Steps 3 and 4 describe the assignment of sample types and assessment sessions to the second sampling unit schools.

1.4.1 Step 1: Primary Sampling Units

National Assessment

In the first stage of sampling for the national NAEP assessment, the United States (the 50 states and the District of Columbia) was divided into geographic primary sampling units (PSUs). Each PSU met a minimum size requirement and generally comprised either a consolidated metropolitan statistical area (CMSA), a metropolitan statistical area (MSA), a single county, or a group of contiguous counties. The PSUs were classified into four Regions (Northeast, Southeast, Central, West), each containing about one-fourth of the U.S. population. In each region, PSUs were additionally classified as MSA or non-MSA. This resulted in eight subuniverses of PSUs.

Ninety-four of the PSUs were selected for the 1998 national assessment. Twenty-two PSUs were designated as certainty units (required to be in the sample) because of their size, and were included in the sample with certainty. The remaining smaller PSUs were not guaranteed to be selected and were accordingly designated as noncertainty PSUs. Within each major stratum, further stratification was achieved by ordering the noncertainty PSUs according to several additional socioeconomic characteristics, creating a second group of strata. Seventy-two PSUs were selected, one per stratum from each of the noncertainty strata, with probability proportional to size (total population from the 1990 census). To enlarge the samples of Black and Hispanic students, thereby enhancing the reliability of estimates for these groups, PSUs from the high-minority noncertainty strata were sampled at twice the rate of those from the other strata. This was achieved by creating smaller strata within the high-minority noncertainty strata.

State Assessment

For each jurisdiction in the state assessment, schools were the primary sampling units (PSUs).

1.4.2 Step 2: Selection of Schools

National Assessment

In the second stage of sampling for the national assessments, the public schools (including Bureau of Indian Affairs [BIA] schools and Department of Defense Education Activity [DoDEA] schools) and nonpublic schools (including Catholic schools) within each of the selected PSUs were listed according to the grade ranges associated with the three age classes. An independent sample of schools was selected separately for each of the grades so that some schools were selected for assessment of two grades, and a few were selected for all three. Schools within each PSU were selected (without replacement) with probabilities proportional to assigned measures of size with oversampling of nonpublic schools and of schools with high minority enrollment. Overall probabilities of selection for high-minority schools were twice those for other schools, while the probabilities of selection for nonpublic schools were triple those for low-minority public schools of the same size. The increased probabilities of selection enlarged the samples of Black and Hispanic students and the samples of students from nonpublic schools, thereby enhancing the reliability of estimates for these groups. Details of the probabilities used for school selection appear in Chapters 3 and 4. For the national samples, the overall school cooperation rate was 86 percent for grade 4, 83 percent for grade 8, and 79 percent for grade 12. In certain instances, refusing schools were replaced by substitutes according to the rules indicated in Chapters 3 and 4.

State Assessment

For the state samples, the stratification used for sample selection varied by school type (public or nonpublic). Stratification of public schools involved four primary dimensions, whereas the stratification of nonpublic schools involved three primary dimensions. Public schools were stratified hierarchically by small- or large-district status, school size class (measured by student enrollment), urbanization classification, and minority classification. Nonpublic schools were stratified by school size class, metro-area status, and school type (Catholic or other nonpublic). Public schools were further stratified implicitly by median household income (i.e., sorted in ascending or descending order) of the ZIP code area where the school was located, and nonpublic schools were further stratified implicitly by estimated grade enrollment in order to provide some control over these variables. Schools were randomly sampled within these stratification classifications.

1.4.3 Step 3: Assigning Assessment Session and Sample Type to Schools

National and State Assessments

Sessions were assigned to the selected schools found to be appropriate at the time of session assignment, as described in Chapters 3 and 4. Sessions were assigned to schools with three goals in mind. The first was to distribute students to the different session types across the entire sample for each grade so that the target numbers of assessed students would be achieved (in each sample type separately in the national main assessments). The second was to maximize the number of different session types that were administered within a given selected school, without creating unduly small sessions. The third was to give each student an equal chance of being selected for a given session type regardless of the number of sessions conducted in the school.

In order to determine the effect of using different criteria for excluding students from the assessment, three different sample types were assigned to the schools selected for the national main assessment in 1996. In sample type 1 schools, the inclusion criteria for the national main samples were identical to those used in 1990 and 1992. In sample type 2 schools, new 1996 inclusion criteria were

used. In sample type 3 schools, the new 1996 inclusion criteria were used and accommodations were offered to SD/LEP students. In the 1998 national main and state reading assessments, sample types 2 and 3 were assigned to schools. The writing and civics assessments were administered to sample type 3 schools only. More detailed information on assigning sample type to schools is provided in Chapters 3 and 4. Inclusion criteria and accommodations are described in Chapter 5.

1.4.4 Step 4: Sampling Students and Teachers

National and State Assessments

In the final stage of sampling, a consolidated list was prepared for each school of all grade-eligible students for the grade for which the school was selected. To provide the target sample size, a systematic selection of eligible students was made from this list, if necessary. In small- and medium-sized schools, all eligible students were in the sample. For schools assigned to more than a single session type, students were assigned by Westat district supervisors to one of the various session types (audiotape or print administration) using specified procedures. No student was assigned to more than one session. In the national main NAEP assessment, students with disabilities and minority students in low-minority schools were oversampled.

Step 4a: Excluded Students. Despite NAEP's goal to assess all selected students, certain selected students were judged by school authorities as being incapable of participating meaningfully in the assessment. For each student who was excluded, school staff who had knowledge of the student's capabilities completed an SD/LEP student questionnaire, listing the reason for exclusion and providing some background information. For each SD/LEP student who was included in the assessment, school staff also completed an SD/LEP student questionnaire.

As stated previously, for the national main NAEP samples, the procedures for assessing students with disabilities (SD) and students of limited English proficiency (LEP) varied by sample type. In sample type 2 schools (for reading), new 1996 inclusion criteria were used. In sample type 3 schools (for reading, writing, and civics), the new 1996 inclusion criteria were used and accommodations were offered to SD/LEP students. The new inclusion criteria were developed to more closely match the procedures used by many states and school districts in testing situations.

Step 4b: Sampling Teachers. Teachers of students assessed were identified and asked by the NAEP supervisor to complete a questionnaire (described in Chapter 2) about their background and instructional practices, by class, for any classes containing assessed students. If the questionnaire was not collected at the time of the assessment, teachers were asked to return the questionnaire in a postage-paid envelope.

Step 4c: The School Characteristics and Policies Questionnaires. Before the assessment, Westat mailed a School Characteristics and Policies Questionnaire to every sampled school for completion by the principal or school administrator. The Westat supervisor then collected the questionnaires and returned them to ETS. The school characteristics and policies questionnaire is described in Chapter 2.

1.5 ASSESSMENT INSTRUMENTS

Four types of instruments were used in the 1998 assessment:

- Student assessment booklets, containing cognitive items and background questions (demographic and subject-specific)
- Teacher questionnaires
- School characteristics and policies questionnaires
- SD/LEP questionnaires

For some assessments, NAEP uses a type of matrix sampling called focused balanced incomplete block (BIB) spiraling to assign blocks or groups of cognitive items to student booklets and to specific students. For other assessments, NAEP uses focused partially balanced incomplete block (PBIB) spiraling for the assignment of items to booklets and students. Because of BIB and PBIB spiraling, NAEP can sample enough students to obtain precise results for each question while generally consuming an average of about an hour and a half of each student's time.

The "focused" part of NAEP's matrix sampling method requires that each student answer questions from only one subject area. The "BIB" or "PBIB" part of the method ensures that students receive different interlocking sections of the assessment forms, enabling NAEP to check for any unusual interactions that may occur between different samples of students and different sets of assessment questions. "Spiraling" refers to the method by which test booklets are assigned to pupils, which ensures that any group of students will be assessed using approximately equal numbers of the different versions of the booklet.

In a BIB design, the cognitive blocks are balanced. Each cognitive block appears an equal number of times in every possible position. Each cognitive block is also paired with every other cognitive block in at least one test booklet. (The NAEP BIB design varies according to subject area.)

Table 1-3 presents a simplified example of a BIB design. The full sample of students is divided into seven equivalent groups, and each group of students is assigned one of the seven test booklets. In this design, each cognitive block appears only once in each of the three possible positions, and each block is paired once with every other block. (This example shows only the cognitive blocks, even though the test booklets also contain background blocks.) The booklets are spiraled in each packet of booklets, so students in each assessment session received each of the seven booklets.

Table 1-3
An Example of a BIB Design

Booklet	Position 1	Position 2	Position 3
Version	Cognitive Block	Cognitive Block	Cognitive Block
1	A	B	D
2	B	C	E
3	C	D	F
4	D	E	G
5	E	F	A
6	F	G	B
7	G	A	C

In a PBIB design, one of the characteristics of a BIB design is not present. Table 1-4 presents a simplified example of a PBIB design, similar to the NAEP national and state reading assessment PBIB design. In this case, every block appears in the first and in the second position twice. All blocks containing items from a content area are paired with every other block with items from that content area, but is paired with only one block with items from the other content area. In this example, blocks A, B, C, and D contain items from Content Area 1, and blocks E, F, G, and H contain items from Content Area 2. The first six booklet versions pair Content Area 1 blocks, and the second six booklet versions pair Content Area 2 blocks. In the final four booklet versions, every block is paired with a block of items from the other content area.

For information on the design of specific assessment instruments, see Chapters 2, 14, 18, and 22.

Table 1-4
An Example of a PBIB Design

Booklet Version	Position 1 Cognitive Block	Position 2 Cognitive Block
1	A	C
2	B	A
3	C	D
4	D	B
5	A	D
6	B	C
7	H	E
8	E	F
9	F	G
10	G	H
11	G	E
12	H	F
13	C	G
14	D	H
15	E	B
16	F	A

1.6 FIELD OPERATIONS AND DATA COLLECTION

Field operations and data collection for the 1998 assessment were the responsibility of Westat, and are documented in Chapter 5 and in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000). The field operation was conducted by a staff at Westat's home office and a larger staff in the field. The Westat home-office staff coordinated all activities related to field operations and managed materials distribution and home-office receipt of assessment reporting forms. The field staff consisted of area supervisors, assessment supervisors, and exercise administrators. The assessment supervisors, who were trained by Westat, were each responsible for the assessment activities in one or more PSUs. Although ETS made initial contact with participating school districts, each assessment supervisor was primarily responsible for making follow-up contacts with these districts, recruiting and training exercise administrators to work with them in administering the assessment sessions, arranging the assessment sessions, and selecting the sample of students to be assessed within each school. The assessment supervisors and the exercise administrators administered the assessments, filled out the

necessary forms, performed process control, and shipped the assessment booklets and forms to National Computer Systems (NCS), the subcontractor responsible for processing NAEP materials and data.

Gaining school cooperation was the joint responsibility of Westat and ETS. ETS made the preliminary contacts preparatory to obtaining school cooperation by first contacting the Chief State School Officers, informing them that schools within their states had been selected for the assessment, and in a later letter, listing the selected schools and districts. Later mailings were sent to superintendents of public schools and parochial schools and principals of other nonpublic schools for all schools selected in the assessment. These materials provided an explanation of NAEP, a list of the selected schools in the official's jurisdiction, and a cover letter explaining that a Westat district supervisor would contact them to set up an introductory meeting. Westat district supervisors then scheduled and conducted introductory meetings (both by telephone and in person), worked with the schools to schedule the assessments, and, with the exercise administrators, conducted the assessments. The unweighted school response rate for the national main assessments in 1998 was 86 percent overall. The final sample of cooperating schools included 733 schools at grade 4; 761 schools at grade 8; and 608 schools at grade 12. Further detail on school participation rates is given in Chapters 3 (national) and 4 (state). An automated management system tracked and recorded the progress of field work throughout the 1998 assessment period. In addition, progress was constantly monitored through telephone reports held between the area supervisors and the assessment supervisors and between the area supervisors and the home-office staff.

Both Westat and ETS participated in the quality control of the field administration, which involved on-site visits by Westat and ETS staff to verify the sampling of the students and to observe the conduct of the assessment by the supervisors and the exercise administrators.

1.7 MATERIALS AND DATA PROCESSING

After completing an assessment session, Westat field supervisors and exercise administrators shipped the assessment booklets and forms from the field to NCS for entry into computer files, professional scoring, and creating the data files for transmittal to ETS. Careful checking assured that all data from the field were received. More than 500,000 booklets and questionnaires were received and processed for the national portion of the 1998 assessment. The extensive processing of these data is detailed in Chapter 6.

The student data were transcribed into machine-readable form by scanning the student instruments with an optical scanning machine. An intelligent data-entry system was used for resolution of the scanned data, the entry of documents rejected by the scanning machine, and the entry of information from the questionnaires. Additionally, each piece of input data was checked to verify that it was of an acceptable type, that it was within a specified range or ranges of values, and that it was consistent with other data values. The entry and editing of materials is discussed in Chapter 6.

1.8 PROFESSIONAL SCORING

Items requiring a written response from the student (constructed-response items) were included in the national and state assessments in reading and writing and in the national assessment in civics. More than four million constructed responses were read and marked by the professional scoring staff for the national and state portions of the 1998 assessment. Image processing and scoring were again used in 1998. Images of students' responses to the constructed-response items were scanned into computerized form, then scored online by professional raters.

Chapter 7 describes the professional scoring operation, including an overview of the scoring guides, the training procedures, and the scoring process for each subject area.

1.9 CREATION OF THE DATABASE

Before analyses could begin, the student response data, school, teacher, and SD/LEP student questionnaire data, and all sampling weights had to be integrated into a coherent and comprehensive database. This database, which was used for all analyses, was also the source for the creation of two NAEP database products—the item information database and the secondary-use data files. Secondary-use data files include sample control statement files for SAS and SPSS statistical software and the NAEP Data on Disk product suite. The Data on Disk products, including a complete set of secondary-use data files on CD-ROM, PC-based NAEP data extraction software, and NAEP analysis modules, make secondary use of NAEP data much easier than it has been in the past. The quality of the data resulting from the complete data entry system, from the actual instruments collected in the field to the final machine-readable database used in analysis, was verified by selecting field instruments at random and performing a character-by-character comparison of these instruments with their representations in the final database. Chapter 8 provides details on the database, quality control activities, and database products.

Chapter 2

DEVELOPING THE NAEP OBJECTIVES, ITEMS, AND BACKGROUND QUESTIONS FOR THE 1998 ASSESSMENTS OF READING, WRITING, AND CIVICS¹

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2.1 INTRODUCTION

In 1998, national main NAEP assessments were conducted in reading, writing, and civics. Additional data were gathered under the auspices of the state assessment programs in reading and writing. The state assessment in reading assessed representative samples of public- and nonpublic-school students from 43 jurisdictions at grades 4 and 8; the state assessment in writing assessed representative samples of public- and nonpublic-school students from 39 jurisdictions at grade 8 only.

From its inception, NAEP has developed assessments through a consensus process, and the 1998 instruments were no exception. Under the direction of the National Assessment Governing Board (NAGB), educators, scholars, and citizens representative of many diverse constituencies and points of view designed assessment frameworks for the writing and civics subject areas. The NAEP reading framework used in the 1992 and 1994 assessments served as the framework for the 1998 reading assessment. Copies of the frameworks for these assessments are available on the National Assessment Governing Board (NAGB) web site at <http://www.nagb.org>. Staff at Educational Testing Service (ETS) who are subject-area experts in their respective fields worked with subject-area consultants well versed in assessment methodology to develop assessment questions appropriate to the objectives. All questions underwent extensive reviews by subject-matter specialists and measurement specialists, both within and outside ETS. All questions were also reviewed for bias by staff specially trained in ETS's fairness review process. Questions were assembled and printed into booklets suitable for matrix sampling and then administered either by a trained field staff (for the national program) or by state or local school district staff (for the state assessment program) to stratified, multistage probability samples of students.

All 1998 assessment development efforts were governed by four major criteria:

1. Each assessment was required to match the content definitions included in the assessment frameworks, which had been developed through consensus processes conducted under the auspices of the NAGB.
2. As outlined in the ETS proposal for the administration of the NAEP cooperative agreement (ETS, 1992), the development of items was guided by an instrument development committee for each subject area.²
3. As described in the *ETS Standards of Quality and Fairness* (ETS, 1987), all materials developed at ETS were in compliance with specified procedures. In particular, all questions were carefully reviewed for content accuracy, testworthiness, and potential bias.

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² A list of the consultants who comprised the 1998 instrument development committees is included in Appendix K.

4. As per federal regulations, all NAEP cognitive and background items were submitted to a federal clearance process. This process involved review of all cognitive items by the National Center for Education Statistics (NCES) and NAGB, and review of all background questions by the Office of Management and Budget (OMB), the Information Management Team (IMT) of the Department of Education, and NCES.

The following sections provide an overview of the process of setting objectives and developing items, as well as specific details about the development of subject-specific objectives and assessments.

2.2 OVERVIEW OF THE 1998 ASSESSMENT OBJECTIVES AND FRAMEWORKS

The subject-area objectives for each NAEP assessment are determined through a legislatively mandated consensus process. Once objectives are established, *frameworks* (matrices) are created, delineating the important content and process areas to be assessed. In addition to these broad frameworks, the Council of Chief State School Officers (CCSSO) and NAGB provide detailed descriptions of item types and the numbers of items to be selected for each category. The frameworks for the 1998 assessments are described below and in Chapters 14 (reading), 18 (writing), and 22 (civics).

The frameworks for the national main 1998 NAEP assessments were developed through consensus processes and were conducted by the CCSSO in reading and civics, and by the Center for Evaluation on Research Standards and Student Testing (CRESST) in writing, working under contract to NAGB. The process involved participation and review by many groups, including teachers, content-area scholars, educational policy makers, and members of the general public. In addition to people directly involved in the framework development processes, the documents were reviewed by state education and testing officials, by representatives of professional associations, and by researchers. In addition, the frameworks were the subject of testimony at public hearings arranged to allow the widest possible participation in the consensus process. The objectives resulting from these processes reflect neither a narrowly defined theoretical framework nor the view of every participant. They do, however, represent the thinking of a broad cross section of individuals who are deeply committed to improving American education.

The framework that governed the 1998 NAEP **reading** assessment was used for the 1992 and 1994 assessments. The NAEP reading assessment was developed in accordance with the *Reading Framework for the National Assessment of Educational Progress, 1992–1998* (NAGB, 1990), making this the third assessment cycle using this framework. The reading assessment was designed around questions requiring in-depth analysis of authentic reading materials. A mixture of multiple-choice, short constructed-response, and extended constructed-response questions made up the assessment. In aggregate, well over half of the student assessment time was spent answering constructed-response rather than multiple-choice questions.

The reading framework is organized according to four reading processes that characterize the ways in which readers gain meaning from text:

- Initial understanding
- Developing an interpretation
- Personal response
- Critical stance

In addition, the assessment was designed to measure the three global reading purposes:

- Reading for literary experience
- Reading to gain information
- Reading to perform a task

The assessment measured students' ability to read based on a variety of passages, including informational materials, documents, news articles, essays, and stories. Each student in the assessment was asked to complete either two 25-minute sets (at all three grades) or one 50-minute set (at grades 8 and 12) of reading passages and comprehension questions. A combination of multiple-choice and constructed-response questions is used to assess students' understanding of the assessment passages.

The 1998 **writing** assessment is structured in accordance with the *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress* (NAGB, 1996b), the assessment measured three kinds of writing:

- Informative
- Narrative
- Persuasive

Because the 1998 writing assessment was based on a new framework, it represents the beginning of a new trend line. Participants responded either to two 25-minute passages or (for some students at grades 8 and 12) to one 50-minute passage. The writing assessment also contained a special study of classroom writing. In that study, 100 teachers at grade 4 and 100 teachers at grade 8 were interviewed about how they teach writing. In addition, for one of their classes, every student was asked to choose and submit the two best pieces of writing he or she had written for that class. Results of this study will be published in a separate report. Unlike the reading assessment, the writing and civics assessments are reported along a single within-grade scale.

The framework for the 1998 **civics** assessment, titled *Civics Framework and Specifications for the 1998 National Assessment of Educational Progress* (NAGB, 1996a), is strongly related to the *National Standards for Civics and Government* developed by the Center for Civic Education (1994). Because the 1998 civics assessment was based on a new framework, it represents the beginning of a new trend line. A combination of multiple-choice, short constructed-response, and extended constructed-response questions made up the assessment. In addition to the national civics assessment, a special civics trend study was conducted, in which students were administered instruments from the 1988 NAEP civics assessment.

According to the framework, the civics assessment was designed to measure three interrelated components of civics proficiency: knowledge, intellectual and participatory skills, and civic dispositions. The knowledge component of the framework was divided into five content areas:

- Civic life, politics, and government
- The foundations of the American political system
- The Constitution and American government
- The United States and world affairs
- The roles of United States citizens

The framework also divided intellectual skills into three types, ranging roughly from simpler to higher order thinking skills:

- Identifying and describing
- Explaining and analyzing
- Evaluating, taking, and defending positions

The framework recommended that a special study in civics trend be conducted, in which a subsample of students participating in the national civics assessment would be administered an intact portion of the assessment instruments used in the 1988 civics assessment. Results for the portions administered could then be compared to results of corresponding portions from the 1998 assessment.

2.3 GENERAL OVERVIEW OF PROCEDURES FOR DEVELOPING COGNITIVE ITEMS

A carefully developed and tested series of steps, similar to those used for past NAEP assessments, was utilized to create assessment items that reflected reading, writing, and civics objectives and measured achievement related to them (see Chapters 14, 18, and 22 for information on assessment instruments for reading, writing, and civics, respectively). The item-development steps for each subject area were as follows:

1. NAGB provided content frameworks and item specifications in each subject area.
2. Instrument development committees in each subject area provided guidance to NAEP staff about how the objectives could be measured given the realistic constraints of resources and the feasibility of measurement technology. The committees made recommendations about priorities for the assessment (within the context of the assessment framework) and the types of items to be developed.
3. Items were chosen for the assessment through an extensive selection process that involved the input of practitioners from across the country as well as from members of the instrument development committees.
4. Specialists with subject-matter expertise, skills, and experience in creating items according to specifications were identified from inside and outside ETS to develop and review the assessment questions.
5. The items and accompanying scoring guides were reviewed and revised by NAEP/ETS staff and external test specialists.
6. Representatives from the state education agencies met and reviewed all items and background questionnaires that were scheduled to be part of the state assessment.
7. Editorial and fairness reviews were conducted as required by the *ETS Standards for Quality and Fairness* (ETS, 1987).
8. Field test materials were prepared, including those necessary to secure clearance by the Office of Management and Budget.

9. A field test was conducted in many states, the District of Columbia, and Virgin Islands.
10. Representatives from state education agencies met and reviewed the field test results for all exercises selected for the state assessment.
11. Based on the field test analyses, new items for the 1998 assessment were revised or modified where necessary. The items once again underwent the full range of ETS reviews.
12. The instrument development committees approved the selection of items to include in the 1998 assessment.
13. After a final review and check to ensure that each assessment booklet and each block met the overall guidelines for the assessment, the booklets were typeset and printed.

Development of the reading, writing, and civics assessments are described in more detail in Chapters 14, 18, and 22, respectively.

2.4 DEVELOPING BACKGROUND ITEMS

As part of the assessment, a series of questionnaires was administered to students, teacher, and school administrators. Similar to the development of the cognitive items, the development of the policy issues and questionnaire items was a consensual process that involved staff work, field testing, and review by external advisory groups. A Background Questionnaire Panel drafted a set of policy issues and made recommendations regarding the design of the items. They were particularly interested in capitalizing on the unique properties of NAEP and not duplicating other surveys.

The Panel recommended a focused study that addressed the relationship between student achievement and instructional practices. The issues, items, and field test results were reviewed by the group of external consultants who identified specific items to be included in the final questionnaires. The items underwent internal ETS review procedures to ensure fairness and quality and were then assembled into questionnaires.

Detailed descriptions of the student and teacher questionnaires are given in Chapter 14 (reading), Chapter 18 (writing), and Chapter 22 (civics). In addition to these, two additional questionnaires were developed for use across subject areas.

- The *School Characteristics and Policies Questionnaire* was given to the principal or other administrator of each school that participated in NAEP. This questionnaire included questions about characteristics of the school, school enrollment, absenteeism, drop-out rates, tracking policies, curriculum, testing practices and use, special priorities and schoolwide programs, availability of resources, special services, community services, policies for parental involvement, and schoolwide problems.

- The *SD/LEP Questionnaire* was completed for each student who was selected to participate in the assessment sample and was classified as a student with a disability (SD), or was categorized as a limited English proficient (LEP) student. This questionnaire, which was completed by someone at the school knowledgeable about the student, asked about the student's background and the special programs in which the student participated. This questionnaire was completed for each SD, LEP, or SD/LEP student in the sample, whether or not that student included in the assessment.

Chapter 3

SAMPLE DESIGN FOR THE NATIONAL ASSESSMENT¹

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3.1 INTRODUCTION

This chapter details sampling activities of the 1998 National Assessment of Educational Progress (NAEP). This introduction gives an overview of the sample design and selection activities and provides some highlights of the current design for the national assessments. Section 3.2 presents detailed documentation of the 1998 sampling of primary sampling units (PSUs) and of schools within PSUs. Section 3.3 discusses the allocation of sessions to schools and the assignment of sample types to schools, and Section 3.4 discusses student sampling within schools. Additional details on the sampling design and process can be found in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

3.1.1 Brief Overview of the Sample Design and Sampling Activities

The sample for the 1998 national assessment was a multistage probability sample. Counties or groups of counties were the first-stage sampling units, and elementary and secondary schools were the second-stage units. The third stage of sampling involved the assignment of sessions by type and of sample types to sampled schools. The fourth stage involved selection of students within schools and their assignment to session types.

A total of 94 primary sampling units (PSUs) were included in the national sample; a sample of 733 schools actually participated in the assessment at the fourth grade, 761 schools at the eighth grade, and 608 schools at the twelfth grade. Various blocks or packages of exercises were administered in these schools to 36,104 fourth-graders, 48,797 eighth-graders, and 48,588 twelfth-graders, for a total of 133,489 assessed students. Sometimes schools selected for the sample could not participate in the NAEP assessments (e.g., the schools had closed or no longer taught the appropriate grade level). The participation rates of schools and students are discussed in Section 3.2.4. The use of partially balanced incomplete block (PBIB) designs in the assessment booklets, and spiraling in the assembling of booklets for the assessment is described in Chapter 1.

The weighting procedures for the 1998 NAEP included computing a student's base weight (i.e., the reciprocal of the overall probability that the student was invited to a particular type of session) and adjusting this base weight for nonresponse. The weights were further adjusted by a poststratification procedure. Counts of students in various regions and ethnic subclasses were estimated for the 1997–98 school year by age and grade on the basis of information from the Current Population Survey and Census Bureau tabulations of population distributions. The procedures of poststratifying weights are discussed in

¹ Keith F. Rust was responsible for overseeing all sampling activities; Tom Krenzke carried out most of the national sampling activities. Jiahe Qian, in consultation with Eugene G. Johnson, was responsible for the specification and coordination of the national sampling at ETS.

Section 10.2.5. The weights were then adjusted so that the aggregate NAEP estimates would agree with these estimated counts for each subclass. In all NAEP assessments, including 1998, weights were not poststratified to the Common Core of Data (CCD) for the following reasons:

- CCD contains only public schools.
- CCD data is not as current as census data.
- CCD collects data at the school level.
- CCD, at that time, did not collect data by grade and race.
- CCD, like other publicly available lists of schools, contains ineligible schools that were thought to be eligible at the time the CCD was produced.

The CPS estimates and census projections provide independent data sources (i.e., independent from the source of the NAEP sampling frame), which is commonly used for poststratification in national surveys.

Variances for NAEP are computed by the jackknife procedure. Westat computed estimates of summary measures for the samples and their sampling errors in the process of reviewing weights and weight adjustments. The principal estimates and their variances were computed at ETS.

3.1.2 Target Population and Sample Size

The target population for the 1998 assessment consisted of fourth-grade, eighth-grade, and twelfth-grade students enrolled in public and nonpublic elementary and secondary schools. Table 3-1 shows the target number of students to be assessed in each grade. The targets were intended to yield approximately 2,000 completed assessment booklets containing each block of items in the PBIB assessments for each grade. To allow for the derivation of reliable estimates for nonpublic-school students, the selection probabilities for nonpublic schools were larger than those of similarly sized public schools not designated high-minority (see Section 3.2.4.2).

Table 3-1
1998 NAEP National Samples and Target Sample Sizes

Subject		Target Sample Size
Total		132,000
Grade 4	Civics	6,000
	Civics Special Trend	2,000
	Reading	8,000
	25-Minute Writing	20,000
	Grade 4 Total		36,000
Grade 8	Civics	8,000
	Civics Special Trend	2,000
	Reading	11,000
	25-Minute Writing	20,000
	50-Minute Writing	6,000
Grade 8 Total		47,000
Grade 12	Civics	8,000
	Civics Special Trend	2,000
	Reading	13,000
	25-Minute Writing	20,000
	50-Minute Writing	6,000
Grade 12 Total		49,000

3.1.3 Highlights of Design Changes for the 1998 Assessment

The general sampling design plan for the 1998 assessment was similar in most respects to that of 1996. Four major changes were made:

- The long-term trend assessments of reading, writing, mathematics, and science were not administered in 1998.
- The samples consisted of three distinct session types (writing/civics, civics special trend, and reading) for each grade, four distinct subjects for grade 4, and five distinct subjects for each of grade 8 and 12 (as shown in Table 3-1). Writing and civics assessments were given in the same session.
- Two sample types (S2, S3) were assigned to subsamples by session in schools. For S2 students, accommodations were not provided for SD/LEP students, while for S3 students, accommodations were provided.
- While SD/LEP students were sampled at a higher rate than non-SD/LEP students, just as in 1996, Black and Hispanic students were also sampled at a higher rate within schools that were in low-minority geographic areas (see Section 3.4.5.1).

To aid the reader, a glossary of terms and abbreviations used in this chapter is provided at the end of the chapter.

3.2 THE SAMPLE OF PRIMARY SAMPLING UNITS AND SCHOOLS

The samples for the 1998 NAEP assessment were selected using a complex multistage sample design involving the sampling of students from selected schools within 94 selected geographic areas, called primary sampling units (PSUs), across the United States. The samples were designed to represent fourth-, eighth-, and twelfth-grade students enrolled in public and nonpublic elementary and secondary schools. The sample design had four steps in the selection process:

1. Selection of geographic PSUs (counties or groups of counties)
2. Selection of schools within PSUs
3. Assignment of session types and sample types to schools
4. Selection of students for session types within schools

Steps 1 and 2 are documented in this section. Step 3 is discussed in Section 3.3. Step 4 is discussed in Section 3.4. For area sampling technique, see Kish (1965).

3.2.1 The Definition of Primary Sampling Units

The basic PSU sample design for 1994 NAEP to 2002 NAEP is a stratified probability sample with one PSU selected per stratum (for each round), with probability proportional to population. A PSU consists of a consolidated metropolitan statistical area (CMSA), a metropolitan statistical area (MSA), a New England County metropolitan area (NECMA), a county, or group of contiguous counties in the U.S. (including Alaska, Hawaii, and the District of Columbia). A total of 94 PSUs per round were selected.

The PSU sampling frame for 1994 NAEP to 2002 NAEP was constructed by grouping counties following specific rules as follows:

- Each 1990 CMSA, and each MSA that was not part of a CMSA, was considered a separate PSU. In New England, NECMAs were the metropolitan PSU unit.
- Non-MSA PSUs were made to consist only of non-MSA counties. Whenever possible, each non-MSA PSU contained geographically contiguous counties with a minimum 1990 total population of 60,000 persons in the Northeastern and Southeastern regions, and 45,000 persons in the Central and Western regions. The criteria of minimum population for a non-MSA PSU were determined by survey design to achieve similar numbers of PSUs across the regions.
- Region boundaries were not crossed in the definition of a PSU, not even in the case of MSAs. If a county in an MSA was in a separate region, it was taken out of the MSA and grouped with other contiguous counties in its region to define a PSU.

Checks were made to ensure that every county was included in one and only one PSU. The frame contained 1,027 PSUs: 290 MSAs and 737 non-MSAs.

3.2.2 Definition of PSU Strata

Eight major strata were formed by crossing region and MSA status. The PSUs were classified into four regions, each containing about one-fourth of the U.S. population. These regions were defined primarily by state (Table 3-2).

Table 3-2
Definition of NAEP Stratification and Reporting Regions

Northeast	Southeast	Central	West
Connecticut	Alabama	Illinois	Alaska
Delaware	Arkansas	Indiana	Arizona
District of Columbia	Florida	Iowa	California
Maine	Georgia	Kansas	Colorado
Maryland	Kentucky	Michigan	Hawaii
Massachusetts	Louisiana	Minnesota	Idaho
New Hampshire	Mississippi	Missouri	Montana
New Jersey	North Carolina	Nebraska	Nevada
New York	South Carolina	North Dakota	New Mexico
Pennsylvania	Tennessee	Ohio	Oklahoma
Rhode Island	Virginia*	South Dakota	Oregon
Vermont	West Virginia	Wisconsin	Texas
Virginia*			Utah
			Washington
			Wyoming

*Those counties and independent cities in Virginia that are part of the Washington, DC, MD-VA metropolitan statistical area are included in the Northeast region. The remainder of Virginia is included in the Southeast region.

The 22 largest PSUs were included with certainty because of their large sizes. The inclusion of these PSUs in the sample with certainty provided an approximately optimal and cost-efficient sample of schools and students when samples were drawn within them at the required national sampling rate. The 22 largest PSUs by region are presented in Table 3-3.

The remaining smaller PSUs were not guaranteed to be selected for the sample. These were grouped into a number of noncertainty strata (PSUs in these strata were not included in the sample with certainty), and one PSU was selected from each stratum. In each region, noncertainty PSUs were classified as MSA (metropolitan) or non-MSA (nonmetropolitan).

Table 3-3
The 22 Largest Primary Sampling Units, by Region, 1998 NAEP

Region	Primary Sampling Unit
Northeast	Baltimore, MD MSA Boston-Lawrence-Salem-Lowell-Brockton, MA NECMA New York-Northern New Jersey-Long Island, NY-NJ CMSA (excluding that part in CT) Philadelphia-Wilmington-Trenton, PA-DE-NJ-MD CMSA Pittsburgh-Beaver Valley, PA CMSA Washington, DC-MD-VA MSA
Southeast	Atlanta, GA MSA Miami-Fort Lauderdale, FL CMSA Tampa-St. Petersburg-Clearwater, FL MSA
Central	Chicago-Gary-Lake County, IL-IN-WI CMSA Cleveland-Akron, OH CMSA Detroit-Ann Arbor, MI CMSA Minneapolis-St. Paul, MN-WI MSA St. Louis, MO-IL MSA
West	Dallas-Fort Worth, TX CMSA Denver-Boulder, CO CMSA Houston-Galveston-Brazoria, TX CMSA Los Angeles-Anaheim-Riverside, CA CMSA Phoenix, AZ MSA San Diego, CA MSA San Francisco-Oakland-San Jose, CA CMSA Seattle-Tacoma, WA CMSA

Within each major stratum, further stratification was achieved by ordering the noncertainty PSUs according to several additional socioeconomic characteristics, yielding 72 strata. The number of such strata formed within each major stratum is shown in Table 3-4. The strata were defined so that the aggregate of the measures of size of the PSUs in a stratum was approximately equal for each stratum. The size measure used was the population from the 1990 Census. The characteristics available for all PSUs, that were used to define strata were the percent minority population, the percentage change in total population since 1980, the per capita income, the percent of persons age 25 or over with college degrees, the percent of persons age 25 or over who have completed high school, and the civilian unemployment rate. Up to four of these characteristics were used in any one major stratum. For each major stratum the characteristics used were chosen by modeling NAEP PSU-level mean reading scale scores for years 17, 19, and 21 (1988, 1990, and 1992). The characteristics chosen were the best predictors of PSU-level mean reading scale scores in these models.

Table 3-4
*The Number of Noncertainty
 Strata in Each Major Stratum 1998 NAEP*

Region	Number of Strata for MSA PSUs	Number of Strata for Non-MSA PSUs	Total
Northeast	6	4	10
Southeast	12	12	24
Central	8	12	20
West	10	8	18
Total	36	36	72

3.2.3 Selection of Noncertainty PSUs

In the first stage of sampling, a sample of PSUs was drawn for the national NAEP samples for each of the survey years 1994, 1996, 1998, 2000, and 2002. For each survey year, 94 PSUs were selected. Of the 94 selected PSUs, 22 were included with certainty because they had the largest populations in the PSU universe. These 22 certainty PSUs were used in the sample for each of the survey years. The rest of the PSUs in each survey, 72 in total, were selected with a probability proportional to their respective population size. To select noncertainty PSUs, the remaining PSUs on the sampling frame were further stratified into 72 noncertainty strata.

Within each of the noncertainty strata, one PSU was selected with probability proportionate to its 1990 population size for each survey year. That is, within each stratum, a PSU's probability of being selected was proportional to its population size. The PSUs were selected with probability proportional to size (PPS) with the twin aims of obtaining approximately self-weighting samples of students and having approximately equal workloads in each PSU. PSUs were drawn to minimize overlap of the PSUs from one assessment to the next, except that certainty PSUs were retained in each assessment year, and some of the larger noncertainty PSUs are in the sample for more than one of these assessment years. Each sample of 94 PSUs was drawn from a population of about 1,000 PSUs. Primarily because of the use of MSAs as PSUs, PSUs varied considerably as to their probability of selection, since they varied greatly in size. In 1998, the 36 selected MSA PSUs had probabilities of selection ranging from 0.03 to 0.56, while the 36 selected non-MSA PSUs had probabilities ranging from 0.03 to 0.10. Parts of 44 states were included in the sample PSUs. Since one PSU was selected from each noncertainty stratum, the distribution of the noncertainty PSUs is the same as the noncertainty strata, as shown in Table 3-4.

Within each stratum the order of the PSUs was randomized. As detailed later in the section, the selection of PSUs within a stratum was not independent among the survey years. Ordering the PSUs within a stratum by size, geography, or other variables could have resulted in unintended and possibly detrimental correlations between survey estimates across years. Since only one PSU is selected for a given year, the PSU ordering has no effect on sampling variance.

For each PSU within a stratum a normalized measure of size was calculated by dividing the PSU's 1990 population by the aggregate 1990 population of all PSUs in the stratum. Next, a cumulative count of normalized measures of size was calculated for each PSU within a stratum. The cumulative count for the k^{th} PSU in the i^{th} stratum, denoted C_{ik} , was equal to $\sum_{j=1}^k \frac{NM_{ij}}{NM_{i\cdot}}$ where $\frac{NM_{ij}}{NM_{i\cdot}}$ represents the normalized measure for the j^{th} PSU in the i^{th} stratum.

For each stratum a random number between 0 and 1 was generated. Using this random number, denoted r , the following sequence of sample designation numbers was generated for the five survey years:

Survey Year	1994	1996	1998	2000	2002
Sample Designation Number	r	$r + 0.4$	$r + 0.8$	$r + 0.2$	$r + 0.6$

Only the noninteger part of any number in the sequence that exceeded 1.0000 was retained. For example, if r was equal to 0.326743, then $r + 0.8$ was equal to 1.126743 and 0.126743 became the sample designation number for 1998.

The first PSU in the stratum whose cumulative count was equal to or greater than r was designated the 1994 sample PSU. Similarly, the first PSUs in the stratum whose cumulative counts were equal to or greater than the noninteger portions of $r + 0.4$, $r + 0.8$, $r + 0.2$, and $r + 0.6$ were designated the 1996, 1998, 2000, and 2002 sample PSUs, respectively.

The purpose of having the sample designation numbers for 1996, 1998, 2000, and 2002 be functions of r was to attempt to minimize the overlap among the sets of sample PSUs chosen for the various survey years. In strata with smaller numbers of PSUs, some PSUs had large enough normalized measures of size so that they were drawn for two and sometimes even three survey years. As the spacing between the sample designation numbers for any two consecutive survey years was at least 0.4, selecting the same PSU in two consecutive survey years was rare.

3.2.4 School Sample

3.2.4.1 Frame Construction

The second-stage sampling is to select a sample of schools within each selected PSU. A list of schools was formed within each PSU, using a number of sources. The public schools (including Bureau of Indian Affairs [BIA] schools and Department of Defense Education Activity [DoDEA] schools) and nonpublic schools (including Catholic schools) were listed according to the three grades. The lists of schools were obtained from two sources. A list of public, BIA, and DoDEA schools, which is maintained by Quality Education Data, Incorporated (QED) and included information from the 1994–95 NCES Common Core of Data (CCD), was obtained in March of 1997. Regular public schools are schools with students who are classified as being in a specific grade (as opposed to schools having only “ungraded” classrooms). This includes statewide magnet schools and charter schools. Catholic and other nonpublic schools were obtained from the *1995-96 Private School Survey* (PSS) developed for the National Center for Education Statistics. The PSS list of schools is an on-going registry of private schools. The registry is updated prior to the survey through two sources. The first source, called the list frame, is a conglomeration of a number of lists from several associations, states, etc. Although the list frame attempts to have complete coverage of the private school universe, it needs to be supplemented with a second source. The second source uses an area frame to identify and represent schools not on the list frame. The area samples are conducted first by randomly selecting primary sampling units (PSUs), which are single counties or groups of counties from the area frame, which consists of all counties in the nation. Within each selected PSU, a complete list of schools is gathered from a variety of means, and schools not on the list frame are identified and are added to the list frame of nonpublic schools. The majority of the PSS list comes from complete enumeration of schools, a list of schools obtained from different resources. But a small portion of the PSS list was obtained from a sample of counties selected for the PSS. For details of PSS area sampling frame, see the *Private School Universe*

Survey, 1995-1996 (Broughman & Colaciello, 1998). The probabilities of selection for schools to be on the PSS list ranged from 0.06 to 1.00. A weight component was computed, as discussed in Chapter 10, so that these selected PSS nonpublic schools represent themselves, as well as the non-PSS nonpublic schools for non-PSS PSUs.

The ID variable NCESSCH is contained in the CCD file and is echoed by the QED file. This is the unique NCES-assigned school number. The variable NCESSCH is filled in for new schools that were added to the NAEP samples. It can be used to merge NAEP data back with CCD files. The schools that do not match will probably be the additional schools, and nonpublic schools.

Table 3-5 shows the numbers of schools included in the various sampling frame components. The population of eligible schools for each grade was restricted to the selected 94 PSUs. Any school having one or more of the eligible grades, and located within an appropriate PSU, was included in the sampling frame of schools (the list of schools from which the samples of schools were drawn) for a given sample. An independent sample of schools was selected for each of the grades.

Table 3-5
Number of Schools Eligible in QED and PSS Sampling Frame Components by Grade, 1998 Main NAEP

Sample	QED Public*	QED Nonpublic†	PSS Nonpublic
Grade 4	19,962	20	11,428
Grade 8	7,382	11	10,169
Grade 12	4,513	8	4,845

* Public schools, including state-run schools; does not include DoDEA, BIA schools.

† DoDEA, BIA, Catholic, and other nonpublic schools

For each school in each frame, estimates were made of the number of students who were eligible by grade. The QED and PSS files give total enrollment, enrollment by grade, and the grade range for each school, thus providing the average enrollment per grade.

A school would appear in the frame for a particular grade without regard to its eligibility status for either of the two other designated grades. As a result, there is considerable overlap among the three frames.

Before selecting schools, high-minority public schools were identified for oversampling. If the percentage of Hispanic and Black students was not reported or if it was less than 10%, the school was classified as not high-minority; otherwise, the school was classified as high-minority if the percentage of Hispanic and Black students was greater than 10% (15% for grade 12) and if the number of Hispanic and Black students was at least 10 (15 for grade 12).

3.2.4.2 Assigning Size Measures and Selecting School Samples

For each grade-level sample, schools were selected (without replacement) across all PSUs systematically from a sorted list, with probabilities proportional to assigned measures of size. The sorting variables included NAEP region, private/public classification, type of location, high/low minority classification, PSU stratum, and estimated grade enrollment. The order of the sort differed depending on

public and private school classification and certainty/noncertainty PSU classification. To increase cost-efficiency in sampling, samples were designed to include more nonpublic schools and high-minority public schools, and more relatively large schools. Therefore, a measure of size was assigned to each school according to the following scheme.

Let S_i denote the estimated number of grade-eligible students in school i . Let $L = 100$ for the assessment of grade 4, $L = 125$ for the assessment of grade 8, and $L = 150$ for the assessment of grade 12. The measure of size was:

$$\begin{aligned} &.25 k_i, && \text{if } S_i \text{ was less than 6;} \\ &k_i S_i / 20, && \text{if } S_i \text{ was greater than 5 but less than 20;} \\ &k_i, && \text{if } S_i \text{ was greater than 19 but less than 101 (grade 4) or 126} \\ & && \text{(grade 8) or 151 (grade 12); and} \\ &k_i S_i / L, && \text{if } S_i \text{ was greater than } L; \end{aligned}$$

where

$$\begin{aligned} k_i &= 3, \text{ for nonpublic schools (other than BIA and DoDEA schools);} \\ &= 2, \text{ for high-minority public schools, and;} \\ &= 1, \text{ for low-minority public schools.} \end{aligned}$$

This procedure was used so as to obtain approximately self-weighting samples of students (i.e., students selected with approximately equal overall probabilities) within the oversampling domains at each grade. Three variations to the overall goal of self-weighting samples were implemented. First, schools with fewer than 20 estimated grade-eligible students were assigned somewhat lower measures of size, and thus lower probabilities of selection. This was designed to increase cost efficiency.

Second, each public school designated as high-minority was given double the measure of size of a public school of similar size not designated high-minority. Such high-minority schools were oversampled in order to enlarge the sample of Black and Hispanic students, thereby enhancing the reliability of estimates for these groups. For a given overall sample size, this procedure reduces somewhat the reliability of estimates for all students as a whole and for those not Black or Hispanic. Third, each nonpublic school was given triple the measure of size of a public school of similar size not designated high-minority. These greater probabilities of selection were used to ensure adequate samples of nonpublic-school students in order to allow the derivation of reliable estimates for such students.

The participation rates used to determine the school and student sample sizes are the participation and eligibility rates achieved in 1996. They are shown in Table 3-6. In addition, we inflated the resulting sample sizes by 1.05 to allow for the possibility of decreases in response rate, and for the inaccuracy of the estimated enrollments.

Table 3-6
Participation Rates in 1996 National NAEP

	Grade 4	Grade 8	Grade 12
School Participation Rate	0.86	0.83	0.79
School Eligibility Rate	0.93	0.95	0.96
Student Participation Rate	0.95	0.92	0.80
Overall Participation Rate	0.82	0.76	0.64

3.2.4.3 Updating the School Frame and Sample

The QED files do not contain schools that opened between 1996 and the assessment dates. Therefore, special procedures were implemented to be sure that the NAEP assessment represented students in new public schools. Small school districts, those that contained only one eligible school for a given grade, were handled differently from large school districts, which contained more than one eligible school for a given grade. In small school districts, the schools selected for a given grade were thought to contain all students in the district who were eligible for the assessment. Districts containing these schools were asked if other schools with the appropriate grades for the assessment existed, and if so, they were automatically included in the assessment.

The procedure for obtaining lists of new schools in large districts was coordinated with a similar procedure used for the 1998 state assessment. For large school districts a district-level frame was constructed from the schools on the QED file. Then districts were sampled systematically with probabilities proportional to a measure of size. In most cases, the measure of size was total district enrollment, but in very small districts a minimum measure of size was used. New schools in small districts were identified during school recruitment. Each sampled district was asked to update the list of eligible schools based on information in the QED files. Frames of eligible new schools were then constructed at each grade level, and samples of new schools were selected systematically with probability proportional to eligible enrollment using the same sampling rates as for the QED schools. As a result of this process, 10 new public schools were selected—four at grade 4, three at grade 8, and three at grade 12.

The number of sampled schools by major stratum is presented in Table 3-7. The counts are shown for each grade and include new schools selected in the new schools sampling process. It should be noted that the variables that comprise the major strata (i.e. region, MSA status) were used implicitly as sorting variables in the school sampling process. Additional counts by geographic and school characteristics are shown in Table A-4 (for respondent schools).

Table 3-7
Number of Schools in the Original Samples by Major Stratum

Grade	Region	MSA	MSA	Non-MSA	Total
		Certainty PSU	Noncertainty PSU	Noncertainty PSU	
4	Northeast	125	54	17	196
	Southeast	27	105	61	193
	Central	78	80	59	217
	West	145	88	50	283
	Total	375	327	187	889
8	Northeast	142	60	18	220
	Southeast	29	110	70	209
	Central	90	84	62	236
	West	148	95	49	292
	Total	409	349	199	957
12	Northeast	122	45	19	186
	Southeast	29	101	79	209
	Central	68	59	55	182
	West	139	84	52	275
	Total	358	289	205	852

3.2.4.4 School Substitution

Potential substitute schools were selected for all sampled schools in the 1998 national NAEP where a close match could be identified by their attributes. An attempt was made to pre-select (before field processes began) a maximum of two substitute schools for each sampled public school (one in-district and one out-of-district) and each sampled Catholic school and one for each sampled non-Catholic private school. A nonparticipating school was replaced by a substitute when the participating school for a particular grade was considered a final refusal. To minimize bias, a substitute school resembled the original selection as much as possible.

Substitutes were assigned by matching approximately on the following attributes:

- Affiliation
- Estimated number of grade-eligible students
- Minority composition

A substitute was always selected from the same PSU as the refusing school. When school non-participation was due to district refusal, none of the schools in the refusing district were considered substitute candidates. However, when substituting for refusals due to a principal's refusal, preference was given to substitute candidates in the same district.

The net numbers of substitutes added to the sample by the above procedure are shown in Table 3-8. The number of substitutes was substantially higher than in recent previous rounds of NAEP because of the efficient preselection method of assigning substitutes. The identity of the substitute schools was unknown to the field staff until after the corresponding original selection was designated as a final refusal. This was to protect against any temptation to move on to an "easier" substitute school.

A retrofitting procedure, which used the same criteria as used for the initial substitution procedure, was implemented midway through the data collection process. This method identified nonresponding schools that needed substitutes and assigned to them unused substitute schools. Unused substitute schools are those schools that were initially linked to cooperating original sampled schools. The same matching rules that were used for assigning substitutes were used in the retrofitting procedure.

3.2.4.5 School Participation Experience

Overall, the 1998 before-substitution school participation rates were lower than school participation rates encountered in previous years. However, the after-substitution participation rates were higher than in previous years. Table 3-8 presents a detailed breakdown by participation status of all schools contacted; 1992, 1994, and 1996 participation rates are also shown based on the same computations.

Table 3-8
Summary of School Participation Experience for 1998 National NAEP, Unweighted

	Grade 4	Grade 8	Grade 12	Total	Public*	Nonpublic†
Total Original Sample	889	957	852	2,698	1,581	1,117
Out-of-Range or Closed	54	79	103	236	29	207
No Eligibles Enrolled	7	7	4	18	0	18
State Tested All Students	1	0	0	1	1	0
District Refused	52	50	50	152	151	1
School Refused	104	118	135	357	162	195
Cooperating	671	703	560	1,934	1,238	696
Cooperation Rate Before Substitution‡	81%	81%	75%	79%	80%	78%
(1996)	86%	83%	79%	83%	85%	80%
(1994)	86%	86%	79%	83%	82%	85%
(1992)	86%	85%	81%	84%	86%	82%
Cooperating Replacement for Refusals	62	58	48	168	109	59
Total Cooperating Schools	733	761	608	2,102	1,347	755
Cooperation Rate After Substitution	89%	87%	82%	86%	87%	85%
Total Students Assessed	36,104	48,797	48,588	133,489	110,825	22,664

* Public schools including state-run schools; does not include DoDEA, BIA schools.

† DoDEA, BIA, Catholic, and other nonpublic schools.

‡ The percentages shown on this row take into account situations in which a school was cooperative but was unable to participate at a given grade, because no eligible students were enrolled in that grade at the time of assessment.

3.3 ASSIGNMENT OF SESSIONS AND SAMPLE TYPES TO SCHOOLS

The process of assigning sessions and sample types to schools differed by grade. For grade 4, sessions and sample types were assigned in the same process, while for grades 8 and 12, sessions were assigned first, then sample types. For simplicity, allocation of sessions will be explained first, followed by an explanation of the assignment of sample types.

3.3.1 Description of Session Types

Three different session types were conducted at all grades: writing/civics, reading, and civics special trend. The writing/civics session type contained two subjects for grade 4 (25-minute writing and civics), and three subjects for grades 8 and 12 (25-minute writing, 50-minute writing, and civics). The special civics trend and reading session types contained only one subject in each session type, respectively.

In the 1998 reading assessment, sample types 2 and 3 were assigned to schools. The writing and civics assessments were administered to sample type 3 schools only. More detailed information on assigning sample type to schools is provided in Section 3.3.3.

3.3.2 Allocation of Sessions

The method of determining the number and type of sessions to be administered in a given selected school varied slightly by grade. Sessions were randomly assigned to the selected schools found

to be appropriate at the time of session assignment. First, the number of sessions per school was established. Four sessions per school were specified for grade 4, and five sessions per school were specified for grades 8 and 12. This was the maximum number of sessions that could be administered without creating unduly small session sizes with few eligible students. Schools with fewer than 25 (30 for grade 12) eligible students were asked to conduct only a single session.

Sessions were assigned to schools with two aims in mind. The first was to distribute students to the different session types across the whole sample for each grade so that the target numbers of assessed students would be achieved in each sample type separately. The second was to maximize the number of different session types that were administered within a given selected school, without violating the minimum session sizes discussed above.

3.3.2.1 *Grade 4 Allocation of Sessions*

For grade 4, sessions were allocated to schools in the following way. First, each school was allocated a number of sessions, based on the estimated number of grade-eligible students, as shown here:

Estimated Number of Grade-Eligible Students	Number of Sessions Allocated
1 – 25	1
26 – 50	2
51 – 75	3
76 or More	4

The sessions were allocated to schools by placing schools in the order used for sampling, and allocating the appropriate number of sessions from the following repeated sequence (W denotes writing/civics, R denotes reading, and C denotes civics special trend): R, W, W, W, R, W, W, W, R, W, W, W, R, W, W, C, W, W. This sequence contains 13 W, 4 R, and 1 C. This sequence was designed to ensure the maximum feasible spread of assessment types among schools, while ensuring that close to 72 percent of the selected students were assigned to writing/civics, 22 percent of the selected students were assigned to reading, and 6 percent were assigned to civics special trend.

Schools with 26 or more eligible students were always assigned writing/civics. Schools with 76 or more eligible students were almost always assigned reading. Many schools were awarded "multiple" sessions of writing/civics. This did not necessarily mean that the school had to conduct physically multiple sessions of writing/civics, but the assignment of session types determined the proportions of selected students within the school that were assigned to each session type.

3.3.2.2 *Grade 8 Allocation of Sessions*

For grade 8, sessions were allocated to schools in the following way. First, each school was allocated a number of sessions, based on the estimated number of grade-eligible students, as shown here:

Estimated Number of Grade-Eligible Students	Number of Sessions Allocated
1 – 25	1
26 – 50	2
51 – 75	3
76 – 100	4
101 or more	5

The sessions were allocated to schools by placing schools in the order used for sampling, and allocating the appropriate number of sessions from the following repeated sequence (W denotes writing/civics, R denotes reading, and C denotes civics special trend): R, W, W, W, R, W, W, W, R, W, W, W, R, W, W, C, W, W, R, W, W, W, R, W, W, W, R, W, W, W, R, W, W, W, R, W, W, C, W, W, R, W, W. This sequence contains 34 W, 11 R, and 2 C. This sequence was designed to ensure the maximum feasible spread of assessment types among schools, while ensuring that close to 72 percent of the selected students were assigned to writing/civics, 23 percent of the selected students were assigned to reading, and 4 percent were assigned to civics special trend.

Schools with 26 or more eligible students were always assigned writing/civics. Schools with 76 or more eligible students were almost always assigned reading. Many schools were awarded "multiple" sessions of the same type. This did not necessarily mean that the school had to conduct physically multiple sessions of a given assessment type, but the assignment of session types determined the proportions of selected students within the school that were assigned to each session type.

3.3.2.3 Grade 12 Allocation of Sessions

In the same manner, sessions were allocated to grade 12 schools. First, each school was allocated a number of sessions, based on the estimated number of grade-eligible students, as shown here:

Estimated Number of Grade-Eligible Students	Number of Sessions Allocated
1 – 30	1
31 – 60	2
61 – 90	3
91 – 120	4
121 or more	5

The sessions were allocated to schools by placing schools in the order used for sampling, and allocating the appropriate number of sessions from the following repeated sequence (W denotes writing/civics, R denotes reading, and C denotes civics special trend): R, W, W, R, W, W, R, W, W, R, W, W, C, W, W, R, W, W, R, W, W, W, R, W, W, W, R, W, W, R, W, W, C, W, W, R, W, W, R, W, W, W, R, W, W, W. This sequence contains 34 W, 13 R, and 2 C. This sequence was designed to ensure the maximum feasible spread of assessment types among schools, while ensuring that close to 69 percent of the selected students were assigned to writing/civics, 27 percent of the selected students were assigned to reading, and 4 percent were assigned to civics special trend.

Schools with 31 or more eligible students were always assigned writing/civics. Schools with 91 or more eligible students were almost always assigned reading. Many schools were awarded "multiple" sessions of the same type. This did not necessarily mean that the school had to conduct physically multiple sessions of a given assessment type, but the assignment of session types determined the proportions of selected students within the school that were assigned to each session type.

3.3.3 Assignment of Sample Types

In order to determine the effect of using different criteria for excluding students from the assessment, two different sample types (S2 and S3) were assigned to the subsamples by session in sampled schools. In sample type 2 schools, the 1996 exclusion criteria were used, but no accommodations were offered. In sample type 3 schools, the 1996 exclusion criteria were used and

accommodations were offered to students with disabilities (SD) and students of limited English proficiency (LEP). For writing and civics sessions, there was only sample type, S3. For more details of the exclusion criteria and their implementation, and the accommodations offered students, see Exhibits 4-1 and 4-2 in *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000). The information in this chapter applies to both sample types or subsamples.

Sample type was assigned to schools separately for each grade so that 50 percent of the schools assigned reading were assigned sample type 2 and 50 percent were assigned sample type 3. Then, for schools that were also selected for the state assessment program, sample type was revised as explained in Section 3.3.3.4.

3.3.3.1 Grade 4 Assignment of Sample Types

At grade 4, sample type was assigned when allocating sessions to schools. Section 3.3.2 presented the session allocation sequence. The assignment of sample type to the subsamples by session was incorporated into the sequence as follows: R2, W, W, W, R3, W, W, W, R2, W, W, W, R3, W, W, C, W, W, where R2 means the school was allocated a reading session and assigned sample type 2, and R3 means the schools was allocated a reading session and assigned sample type 3. Thus, the sequence contained two reading sessions for sample type 2 (R2) and two reading sessions for sample type 3 (R3). In this manner, sample type was assigned so that a variety of schools with respect to region, school type, urbanization, and size were in each sample type.

3.3.3.2 Grade 8 Assignment of Sample Types

For grade 8, the schools were placed in the order of sampling, then sample types were assigned to subsamples for reading session by alternating sample types 2 and 3. Sample type was assigned so that a variety of schools with respect to region, school type, urbanization, and size were in each sample type.

3.3.3.3 Grade 12 Assignment of Sample Types

The assignment of sample type to grade 12 schools was done in the same manner as for grade 8.

3.3.3.4 Schools Selected in Both National and State Assessments

For schools selected in both the national samples and state assessment program within the same grade (only grades 4 and 8 applied), sample type was initially assigned as described above, and then reassigned for the national samples to be consistent with the state assessment. That is, schools were ultimately assigned the same sample type as for the state assessment.

3.4 STUDENT SAMPLE

The sample of students within sampled schools was drawn by systematic sampling from school-prepared lists of eligible students. Student listing forms (SLF) were prepared for each participating school in a given grade; all enrolled students of the specified grade were to be entered on the SLFs. For details, see Exhibit 1 of Appendix B in the *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000). Student samples that also included oversampling of Black and Hispanic students in low-minority areas, and oversampling SD/LEP students in public schools assigned to reading, were specified through the use of session assignment forms (SAF).

3.4.1 Updating Estimates of Grade-Eligible Students

All assessment components were administered to grade-eligible students. Target numbers of completed assessment booklets by booklet number played an important role in the sample design. Preliminary projections of completed test booklets by school were made as a part of the school sample selection procedure based on estimates of eligible students from frame data (see Section 3.2.4.1).

Up-to-date information on grade enrollment was obtained for sampled schools through two field processes. Scheduling assessment dates with schools and being on site at the school at the time of assessment allowed field staff to obtain updated information on the number of grade-eligible students.

3.4.2 Within-School Sampling Rates

Let

M_A = Maximum allowable sample size from an individual school
(100, grade 4; 125, grade 8; 150, grade 12); and

G_i = Revised estimate of grade-eligible students for school i .

Then the sampling rate applied to the list of eligible students to select the sample was given by:

$$R = \frac{M_A}{G_i}$$

if $G_i > (M_A + 10)$, for grades 4 and 8; or
> $(M_A + 20)$, for grade 12;

or $R = 1$, otherwise.

Students were assigned to the sessions systematically, in proportion to the number of sessions of each type allocated to the school, as described in Section 3.3.2. Thus, for example, a grade 8 sample school with an estimated 125 grade-eligible students, assigned sessions W, W, R, W, W, would have four-fifths of the selected students allocated to writing/civics and one-fifth of the selected students allocated to reading.

3.4.3 The Session Assignment Form (SAF)

To control the student sampling operations as closely as possible, Westat generated a session assignment form for each school where sampling was to be carried out. This computer-generated form specified:

- The types of sessions that were to be administered at the school
- The line numbers (from the SLF) specifying the students to be drawn into the sample

- The minimum and maximum number of students listed on the SLF that could be accepted without requiring revision to the within-school sampling rates
- Notification of whether there were to be accommodations offered to SD/LEP students
- Directions and line numbers for oversampling Black and Hispanic students in public schools with low minority enrollment and SD/LEP students in schools assigned reading, and
- Special instructions as appropriate for the teacher survey (see Section 3.4.9), the SD/LEP questionnaire, the NAEP Classroom-Based Writing Study, and the High School Transcript Study (separate, but related to NAEP).

3.4.4 Updating Session Allocation When Generating SAFs

Due to the presence of updated grade enrollment numbers, it became necessary to revise the session allocation structure for some smaller-than-expected schools with more than one session type initially assigned. Smaller-than-expected schools were defined as having a potential of less than 12 students assigned to any particular session type. For example, if two writing/civics and one reading session were assigned, and the number of grade-eligible students was updated to 30, then there would be only 10 assessed in reading. In this case, and in general, for smaller-than-expected schools where the number of grade-eligible students per session type assigned (without regard to the number of sessions assigned for each type) was 12 or more (15 in the example), all session types were kept and students were split evenly across the session types. Thus, in the example given here, 15 students would be assigned to reading and 15 to writing, rather than the initial sample allocation number of 10 and 20, respectively. If the number of grade-eligible students per session type assigned was less than 12, just one session type was kept at random, and a weight adjustment factor was computed as the ratio of the number of sessions assigned to the number of sessions assigned for the session type that was kept. This weight adjustment accounts for dropping one or more session types.

3.4.5 Sample Selection

In the field operations of sample selection, the district supervisor generally carried out the sampling of students a week prior to the assessment. Student listing forms (SLF) were prepared for the applicable grade in each participating school. All enrolled students of the specified grade were to be entered on the SLF in any order convenient to the school, or the school could produce a computer-generated list. Before carrying out the sampling, the district supervisor reviewed the form and made comparisons with other information in an effort to make sure that the list included all eligible students. The sample SLF can be found in *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

The sampling was carried out according to very specific instructions described in the supervisor's manual. The sampling statisticians were available by telephone to assist in the resolution of sampling problems and to generate revised SAFs when necessary.

Briefly, the sample selection procedures involved the following:

- Numbering sequentially the lines listed on the SLF or computer-generated list
- Using the line numbers associated with each session type on the SAF, indicating the sample selection for each session type on the SLF for every student whose line number corresponded to the line numbers given on the SAF

3.4.5.1 Oversampling Black and Hispanic Students

As discussed in Section 3.2, in public schools with high-minority (Black and Hispanic) enrollments, schools were assigned a measure of size twice the size of other low-minority schools, therefore increasing their probability of selection, and indirectly increasing the number of Black and Hispanic students in the sample.

In public schools with low minority enrollment, an oversample of Black and Hispanic students was selected. The procedure was as follows. After the initial sample was selected, as discussed in Section 3.4.5, the nonselected Black and Hispanic students were identified and listed. All such extra Black and Hispanic students were sampled to a total that, as expected, was the same number of Black and Hispanic students as were already selected. In practice, if the number of nonselected students was less than the number of selected students, then all nonselected Black and Hispanic students were to be assessed also. Otherwise, Black and Hispanic students were sampled so that their overall within-school probability of selection was twice the rate of other students.

Line numbers were generated to split the additional sample of Black and Hispanic students into sessions as the session allocation rates applied to the initial sampling procedure. Thus, if the school was assigned two sessions of writing/civics and one of civics special trend, two-thirds of these extra Black and Hispanic students were assigned to writing/civics, and one-third to civics special trend.

The sampling of additional Black and Hispanic students was carried out using designated line numbers, indicated on the session assignment form used to generate the samples of students in each school. In this way, the necessary information as to the selection probability of each student was retained for use in weighting. No reliance was placed on information generated in the field. Field supervisors had only to follow the prespecified sampling instructions.

Since the aim was to oversample by a factor of two where possible, but never more than two, the overall rate of oversampling of Black and Hispanic students was instead less than two. That is because in smaller low-minority schools there were no students remaining who had not already been assigned to a session. The weighting procedures ensured that the results were not biased as a result of the relative underrepresentation of Black and Hispanic students from smaller low-minority schools.

3.4.5.2 Oversampling SD/LEP Students in Reading

As noted in Section 3.1.3, in the reading assessments, the procedures for assessing SD and LEP students varied by sample type. SD/LEP students in sample type 3 were offered accommodations not available to other students or to SD/LEP students in sample type 2.

As a measure to ensure an adequate sample size of SD/LEP students from both sample types 2 and 3 for reading, oversampling procedures were applied to SD/LEP students at all three grades. In this way, comparisons of the effect of offering accommodations to students have enhanced power to detect effects.

The general intent of oversampling within each school that was assigned at least one reading session was to select SD/LEP students at twice the rate at which non-SD/LEP students were sampled (or to include all SD/LEP students if there were not sufficient numbers to permit sampling at twice the rate). There was no oversampling of schools as part of the procedure.

The procedure was as follows. In each school where oversampling of SD/LEP students was to occur, the initial desired sample of students was drawn for each session assigned, from the full list of eligible students. In addition, in public schools in low-minority areas, oversampling of Black and Hispanic students occurred. Among those students not selected for either of the two prior sampling operations for this school, the SD/LEP students were identified. A sample from among these was drawn, using a sampling rate that would achieve the double sampling rate required overall. In most cases in grade 4, this involved selecting all such SD/LEP students in the school. Again, the weighting procedures ensured that the results were not biased as a result of the relative underrepresentation of SD/LEP students from smaller schools.

As with the oversampling of Black and Hispanic students, the sampling of additional SD/LEP students was carried out using designated line numbers.

Table 3-9 shows the results of the oversampling efforts relating to SD/LEP students for each grade and sample type for reading. The weighted results show the proportion of the sample that would have been SD/LEP students had no oversampling been attempted. The focus is on sample types 2 and 3 for reading, since this is where the oversampling of SD/LEP students occurred. The extent to which the unweighted percentage of SD/LEP students exceeds the weighted percentage is a measure of the effectiveness of the oversampling.

Table 3-9
Percentage of Assessed and Absent Students Who Were Specified as SD/LEP
National 1998 Reading Samples

Sample Type	Grade 4		Grade 8		Grade 12	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
2	11.0	8.3	12.2	7.2	9.4	4.8
3	13.9	10.8	16.0	9.9	10.5	5.9
Total	12.5	9.5	14.0	8.5	9.9	5.3

As can be seen, the procedure was effective in increasing the sample of SD/LEP students considerably at grades 8 and 12, and was effective to a lesser extent at grade 4. To increase the sample of SD/LEP students further at grade 4 would require the assessment of additional schools. The differences in rates between sample types 2 and 3 show the effects of accommodations being offered. It was expected that if no accommodations were offered, the rates would be equal; however, since accommodations were offered in sample type 3, more SD/LEP students were assessed.

3.4.6 Supporting the Field Staff on Sampling Issues

The completed SLF generally contained a number of students, which was different from the number used in operating the SAF. In order to control the total number of students tested per school, an acceptable range for that number was specified. Whenever the total number of students listed on the SLF was outside the specified range, the supervisor used a laptop computer to generate a new set of line

numbers. Based on revised sampling rates, a revised SAF was produced. The revised sampling rates were sent in from the field supervisors and were entered on the weight file.

In order to gain cooperation in some schools, we occasionally granted principals' special requests. For example, some large schools divided their students into clusters, and to minimize disruption among all students in the sampled grade, samples were administered to students within one randomly selected cluster. Students in the sampled cluster were listed on the SLF and new line numbers were generated using the cluster's enrollment. The revised sampling weights were entered on the weight file to account for sampling one cluster.

Table 3-10 shows the distribution of the number of students per school who were assessed for each assessment.

Note that, for the various samples, the number of students assessed per item per school is quite low, even though typically dozens of students were assessed in total in a particular school. Thus, the extent of clustering of the sample is in general quite modest, because most sampled schools conducted a few different assessments with a moderate number of students in each. More importantly, the use of BIB or PBIB spiraling in the administered sessions greatly alleviated the effects of clustering the samples of students within schools, for item-level data.

3.4.7 Excluded Students

The 1998 assessment, as did previous assessments, excluded students who were functionally handicapped to the extent that they could not participate in the assessment as it was normally conducted. Specific groups excluded were:

- Some students identified as having student disability (SD) or equivalent,
- Some students with limited English proficiency (LEP).

Any sample students who were classified SD or LEP (or both) were identified. The school completed an SD/LEP student questionnaire for each student with this designation. This was a change from assessments prior to 1996, in which these questionnaires, then called excluded student questionnaires, were completed only for students who were actually excluded. Then school personnel determined whether any of these students should be excluded from the assessment based on the criteria for excluding students.

According to Table 3-10, for the reading reporting population, about half of the SD/LEP students in grade 4 were excluded. However, for grades 8 and 12, less than half of the SD/LEP students were excluded. Rates of excluded SD/LEP students are also shown by sample type. Recall from Section 3.3 that students in sample type 2 (S2) were not offered accommodations, while students in sample type 3 were offered accommodations. The exclusion rates for SD/LEP students in sample type 2 are similar to that of the reporting population. This is because sample type 2 and the reporting populations contain the same group of SD/LEP students (numerator), but their denominator for the rate calculation differs slightly due to differing groups of non-SD/LEP students. For students in sample type 3, the rates of excluded SD/LEP students are lower.

This data collection effort permits national estimates of statistics for SD, LEP, and excluded students. Table 3-11 shows the distribution of excluded students by reason for exclusion for the three grades. The dominant reason for exclusion from NAEP across all grades and subjects was a student disability. The proportion attributable to student disability increased with grade, while the proportion attributable to limited English proficiency, the second reason, decreased with grade. Table 3-12 presents

the weighted student exclusion rates for each grade and subject by school type and sample type. The exclusion rate decrease as grade increases. The rate for writing and civics are lower than that of civics special trend, since accommodations were offered if necessary. Likewise, the reading sample type 3 rate was lower than that of sample type 2 because accommodations were offered. The rates for public schools are much higher than for private schools.

Table 3-10
*Number of Students Per School for Each Subject Type for 1998 National Assessments**

Sample	Subject Type	Number of Assessed Students	Number Of Schools	Distribution of Students Per Assessment Per School				Mean Number of Students Per Item Per School
				Mean	Median	Minimum	Maximum	
Grade 4	25-Minute Writing	19,816	678	29.2	28.5	1	73	2.9
	Civics	5,948	670	8.9	9.0	1	22	3.0
	Reading/S2	4,048	217	18.7	19.0	2	30	4.7
	Reading/S3	4,204	217	19.4	20.0	1	44	4.8
	Civics Special Trend	2,088	111	18.8	19.0	5	31	18.8
Grade 8	25-Minute Writing	20,586	702	29.3	30.0	1	165	2.9
	50-Minute Writing	6,009	694	8.7	9.0	1	48	2.9
	Civics	8,212	697	11.8	12.0	1	66	2.9
	Reading/S2	6,225	248	25.1	22.0	5	62	4.6
	Reading/S3	5,710	235	24.3	23.0	1	73	4.4
	Civics Special Trend	2,055	104	19.8	20.0	6	30	19.8
Grade 12	25-Minute Writing	19,505	569	34.3	35.0	1	111	3.4
	50-Minute Writing	5,804	564	10.3	10.5	1	34	3.4
	Civics	7,763	566	13.7	14.0	1	43	3.4
	Reading/S2	6,600	245	26.9	24.0	1	85	3.9-4.1 [†]
	Reading/S3	6,723	241	27.9	25.0	1	64	3.7-4.3 [†]
	Civics Special Trend	2,193	102	21.5	21.0	7	79	21.5

* The numbers in this table reflect the full samples, including S2 and S3 for reading.

[†] The number varied because reading for grades 8 and 12 was split into 25-minute reading and 50-minute reading. There was a higher proportion of students assigned to 25-minute reading, and also a larger number of booklets. At grade 8, the number of students per item for the 25-minute reading was equal to that of 50-minute reading.

Table 3-11
*Weighted Percentages of Students Excluded (SD and LEP) from 1998 National Reading Assessment**

Population	Grade	Type	Total % of Students Identified SD or LEP	Total % of Students That Were Excluded	% of Students Identified w/SD	% of Students That Were Excluded and SD	% of Students Identified w/LEP	% of Students That Were Excluded and LEP
Reporting	4	Overall	17.12	9.61	10.05	5.29	7.55	4.71
		Public	18.41	10.55	10.63	5.78	8.31	5.19
		Nonpublic	4.84	0.68	4.59	0.55	0.25	0.13
Reporting	8	Overall	12.39	5.38	9.41	4.63	3.39	1.00
		Public	13.51	5.96	10.22	5.13	3.75	1.11
		Nonpublic	2.23	0.11	2.11	0.11	0.12	0.00
Reporting	12	Overall	7.86	3.08	5.99	2.77	2.14	0.48
		Public	8.52	3.33	6.46	3.00	2.32	0.50
		Nonpublic	1.61	0.69	1.47	0.62	0.36	0.29
S2	4	Overall	17.03	9.56	10.00	5.26	7.50	4.68
		Public	18.29	10.48	10.56	5.75	8.25	5.15
		Nonpublic	4.85	0.68	4.61	0.55	0.25	0.13
S2	8	Overall	12.01	5.21	9.12	4.49	3.29	0.96
		Public	13.14	5.80	9.94	4.99	3.65	1.07
		Nonpublic	2.11	0.10	2.00	0.10	0.11	0.00
S2	12	Overall	7.71	3.02	5.88	2.72	2.10	0.47
		Public	8.39	3.28	6.37	2.95	2.29	0.50
		Nonpublic	1.53	0.66	1.40	0.59	0.34	0.27
S3	4	Overall	16.57	6.48	10.60	4.40	6.46	2.42
		Public	18.09	7.10	11.54	4.80	7.09	2.67
		Nonpublic	1.82	0.49	1.45	0.49	0.38	0.00
S3	8	Overall	13.24	3.70	10.02	2.95	3.67	0.97
		Public	14.40	4.07	10.89	3.23	4.00	1.07
		Nonpublic	2.34	0.29	1.83	0.29	0.51	0.00
S3	12	Overall	7.84	2.10	5.78	1.86	2.19	0.31
		Public	8.50	2.29	6.25	2.04	2.40	0.33
		Nonpublic	1.32	0.13	1.18	0.00	0.13	0.13

* The numbers in this table reflect the full samples, including sample type 2 (S2), and sample type 3 (S3) for reading.

Table 3-12*Weighted and Unweighted Distribution of Students Excluded for 1998 National Assessments, by Reason for Exclusion, Subject, and Grade**

Reason by Subject	Grade 4			Grade 8			Grade 12		
	Unweighted Count	Weighted Count	Weighted Percent	Unweighted Count	Weighted Count	Weighted Percent	Unweighted Count	Weighted Count	Weighted Percent
25-Minute Writing									
SD	717	138,905	64.8	625	116,229	79.2	532	67,450	85.8
LEP	656	66,657	31.1	213	25,797	17.6	95	8,111	10.3
SD and LEP	74	8,044	3.8	33	3,611	2.5	16	1,308	1.7
Other	3	603	0.3	6	1,125	0.8	15	1,779	2.3
Total	1,450	214,210	100.0	877	146,762	100.0	658	78,648	100.0
50-Minute Writing									
SD	—	—	—	186	110,258	78.2	159	72,355	83.3
LEP	—	—	—	71	27,481	19.5	34	11,015	12.7
SD and LEP	—	—	—	8	2,753	2.0	3	1,154	1.3
Other	—	—	—	1	459	0.3	6	2,365	2.7
Total	—	—	—	266	140,951	100.0	202	86,888	100.0
Civics									
SD	195	125,958	63.0	233	108,922	77.7	201	65,236	85.5
LEP	197	67,727	33.9	94	27,955	20.0	36	8,841	11.6
SD and LEP	14	5,900	3.0	14	3,221	2.3	6	1,420	1.9
Other	1	236	0.1	0	0	0.0	4	836	1.1
Total	407	199,822	100.0	341	140,098	100.0	247	76,333	100.0
Reading[†]									
SD	228	223,674	62.7	490	178,076	85.1	340	85,027	86.2
LEP	299	122,640	34.4	103	23,461	11.2	87	9,742	9.9
SD and LEP	11	6,435	1.8	14	2,916	1.4	12	1,753	1.8
Other	7	3,798	1.1	16	4,694	2.2	3	2,152	2.2
Total	545	356,547	100.0	623	209,148	100.0	448	98,674	100.0
Civics Special Trend									
SD	116	200,458	75.9	71	131,949	81.7	89	109,674	91.1
LEP	54	58,115	22.0	21	28,631	17.7	12	9,479	7.9
SD and LEP	6	5,596	2.1	0	0	0.0	2	1,190	1.0
Other	0	0	0.0	1	998	0.6	0	0	0.0
Total	176	264,169	100.0	93	161,578	100.0	103	120,343	100.0

* Weighted counts and percents may not add up exactly to the totals due to rounding.

† Represents the reporting population

Table 3-13
Student Exclusion Rates for 1998 National Assessments By Grade, School Type, and Sample Type, Weighted

Subject/Sample Type	Grade 4			Grade 8			Grade 12		
	Public	Nonpublic	Total	Public	Nonpublic	Total	Public	Nonpublic	Total
25-Minute Writing	6.5%	0.3%	5.8%	4.2%	0.4%	3.8%	2.7%	0.0%	2.5%
50-Minute Writing*	—	—	—	4.2%	0.1%	3.8%	3.0%	0.0%	2.7%
Civics	6.1%	0.2%	5.5%	4.0%	0.3%	3.7%	2.6%	0.0%	2.4%
Reading/S2	10.5%	0.7%	9.6%	5.8%	0.1%	5.2%	3.3%	0.7%	3.0%
Reading/S3	7.1%	0.5%	6.5%	4.1%	0.3%	3.7%	2.3%	0.1%	2.1%
Civics Special Trend	7.6%	0.0%	6.9%	4.4%	0.0%	4.1%	4.2%	0.4%	3.8%

* 50-minute writing blocks were administered at grades 8 and 12 only.

3.4.8 Student Participation Results

The NAEP sample was designed to yield a target number of each of the various assessment components. Table 3-14 compares the target assessments to the actual assessments for the three grades. The targets were quite closely met in all cases. Achieving sampling goals precisely is dependent on many factors, including the reliability of frame enrollment data, and the actual response and exclusion rates encountered.

Table 3-14
Comparison of Target Assessments to Actual Assessments for 1998 National Samples, by Grade

Assessments	Grade 4		Grade 8		Grade 12	
	Target	Actual	Target	Actual	Target	Actual
Total	36,000	36,104	47,000	48,797	49,000	48,589
25-Minute Writing	20,000	19,816	20,000	20,586	20,000	19,505
50-Minute Writing *	—	—	6,000	6,009	6,000	5,805
Civics	6,000	5,948	8,000	8,212	8,000	7,763
Reading	8,000	8,252	11,000	11,935	13,000	13,323
Civics Trend	2,000	2,088	2,000	2,055	2,000	2,193

* 50-minute writing blocks were administered at grades 8 and 12 only.

Table 3-15 shows the unweighted student participation rates of invited students. The set of invited students consists of the selected students, after removing the excluded students. For a given session, a makeup session was called for when, for various reasons, more than a predetermined tolerable number of invited students were absent from the originally scheduled session to which they were invited. The participation rates given in the table express the number finally assessed as a percentage of those initially invited in the participating schools. Participation rates are shown for public and nonpublic schools separately.

Table 3-15
Unweighted Student Participation Rates for National Assessments, by Grade and School Type

Grade	1998 Public		1998 Nonpublic		1998 Combined		1996
	Number Invited	Participation Rate	Number Invited	Participation Rate	Number Invited	Participation Rate	Participation Rate
4	31,400	95.0	6,545	95.8	37,945	95.1	95.4
8	44,171	91.7	8,639	95.9	52,810	92.4	91.5
12	52,148	77.6	8,871	91.4	61,019	79.6	79.9

Overall participation rates are also shown for comparable samples from the 1996 NAEP assessment. The table shows that student participation rates in 1998 are similar to those experienced in 1996. The rates increased slightly at grade 8, and remained fairly steady for the other grades. At all grades, the participation rate of nonpublic-school students exceeds that of public-school students, with the difference, both relative and absolute, increasing with grade.

The combined impact of school nonparticipation and student absenteeism from sessions within participating schools is summarized in Table 3-16. The table shows the percentages of students assessed, from among those who would have been assessed if all initially selected schools had participated and if all invited students had attended either an initial or make-up session. The results show that, consistent with

earlier rounds of NAEP, the overall level of participation decreases substantially with the increase in the grade of the students.

Table 3-16
Overall Unweighted Participation Rates (School and Student Combined)
for 1998 National Assessments, by Grade

1998 Sample	Grade 4	Grade 8	Grade 12	Overall
School Participation				
Before Substitution	81.1%	80.7%	75.2%	79.2%
After Substitution	88.6%	87.3%	81.6%	86.0%
Student Participation	95.1%	92.4%	79.6%	88.0%
Overall Student Participation	84.3%	80.7%	65.0%	75.7%
Number of Participating Students	36,104	48,797	48,589	133,490

So far in this section, only unweighted participation rates by grade and school type have been presented. However, analysis is typically performed separately by grade and subject type, and NCES standards regarding acceptable potentials for bias are expressed in terms of weighted participation rates. Therefore, Table 3-17 shows weighted participation rates by grade and subject type. The sample rates are for students in the reporting populations. Note that the school and student participation rates decrease as grade increases for different session types. At the school level, session types were assigned, and the writing/civics session contained two subject types in grade 4 and three subject types in grades 8 and 12, to which students were assigned. Therefore, the school participation rates for 25-minute writing, 50-minute writing (grades 8 and 12) and civics are identical. The school participation rates (before and after substitution) are fairly similar across subject types. The overall participation rates are relatively low for twelfth grade samples.

The procedures for taking into account nonparticipating schools and for taking into account absent students through weighting were designed (so far as feasible) to reduce the biases resulting from school and student nonparticipation. These procedures are discussed in Chapters 10 and 11.

Table 3-17
Weighted Participation Rates by Grade and Subject Type
for the 1998 National Reporting Samples

Participation (Sample Type)	25-Minute Writing	50-Minute Writing	Civics	Reading	Civics Special Trend
Grade 4					
School Participation					
Before Substitution	79.7%	—	79.7%	81.0%	81.1%
After Substitution	88.6%	—	88.6%	89.4%	90.0%
Student Participation	94.9%	—	94.8%	96.0%	95.4%
Overall Participation	84.1%	—	84.0%	86.0%	86.1%

(continued)

Table 3-17 (continued)
*Weighted Participation Rates by Grade and Subject Type
for the 1998 National Reporting Samples*

Participation (Sample Type)	25-Minute Writing	50-Minute Writing	Civics	Reading	Civics Special Trend
Grade 8					
School Participation					
Before Substitution	77.1%	77.1%	77.1%	76.7%	77.1%
After Substitution	84.6%	84.6%	84.6%	84.1%	90.7%
Student Participation	92.2%	93.0%	92.3%	92.7%	92.3%
Overall Participation	78.0%	78.7%	78.1%	77.9%	83.7%
Grade 12					
School Participation					
Before Substitution	69.7%	69.7%	69.7%	69.7%	68.3%
After Substitution	78.0%	78.0%	78.0%	78.2%	83.4%
Student Participation	79.7%	80.4%	79.4%	80.1%	82.0%
Overall Participation	62.1%	62.7%	61.9%	62.6%	68.4%

3.4.9 Teacher Survey

For the grade 4 and grade 8 samples, a survey of teachers was conducted to obtain information about the teachers, their classes, and those of their students who participated in the assessment using the relevant booklet. The questionnaire gathered information about the teaching practices of teachers of sampled students in each of the subject areas that were assessed (i.e., reading, writing, and civics) at grades 4 and 8. The teacher survey was not administered to civics special trend assessments or for assessments in grade 12. Teachers were asked to complete the questionnaires in order that teachers' background instructional practices can be linked to student achievement data.

GLOSSARY

AS:	The administration schedule was prepared for each session to be held in the school and served as a student roster to be used by the school coordinator and exercise administrator (EA) to carry out the session.
BIB design:	A design in which all the exercises in the assessment for an age class are divided up into small blocks. Each exercise block is then assigned to a number of assessment packages (booklets) such that each block is paired with every other block in some booklet the same number of times in a balanced incomplete block (BIB) design. Variants of this design are called partially balanced incomplete block (PBIB) designs.
PSS:	Enrollment grade span and other data for individual private schools were aggregated into data for use in sampling PSUs and schools, and in preliminary session allocation. These data were obtained from a computer file of schools from the Private School Survey conducted by NCES.
PSU:	Primary sampling units are metropolitan statistical areas, counties, or groups of contiguous counties in the U.S. that served as the first-stage sampling units (see Section 3.2.1).
QED:	Enrollment grade span and other data for individual public schools was aggregated into data for use in sampling PSUs and schools, and in preliminary session allocation. These data were obtained from a computer file of schools and school districts from Quality Education Data, Inc.
SAF:	The session assignment form was generated for each cooperating school. It identified the subjects to be administered and the line numbers on the SLF that identified the sampled students to be included in each subject.
Session:	A group of students reporting for the administration of an assessment. A distinction was made between the number of invited students and the number completing the assessment.
SLF:	The student listing forms were the forms used by the school (or supervisor) to list eligible students. Students were sampled from these lists.
Spiraling:	A procedure for assigning tests to students whereby the test packages that are included in the spiral administration procedure are systematically interspersed, and are assigned for testing in this arrangement.
Type of Locale:	The type of locale (TOL) code is a Westat code for the location of a school relative to populous areas.

Chapter 4

SAMPLE DESIGN FOR THE STATE ASSESSMENT¹

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4.1 INTRODUCTION

This chapter describes sampling activities for the 1998 NAEP state reading and writing assessments, in which 333,624 students were assessed (see Table 5-4). The 1998 state assessment program in *reading* included assessments of fourth- and eighth-grade students. The 1998 state assessment program in *writing* was conducted in grade 8 only. *Civics* was not assessed at the state level. The details of the sample design and selection procedure can be found in the *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000). For the eighth grade, the samples selected for both the reading and writing assessments were selected as part of the same process; and in some schools in the eighth-grade sample, both sessions of reading and writing were assigned. A representative sample of public- and nonpublic-school students was drawn in each participating jurisdiction. The samples in each jurisdiction were selected in two stages, with schools selected at the first stage and students selected at the second stage. This design was intended to produce aggregate estimates as well as estimates for various subpopulations of interest for all the participating jurisdictions. The sample for the fourth- and eighth-grade public-school assessments in each jurisdiction consisted of about 3,150 students (before attrition) in each subject from about 100 public schools in each case. The target for nonpublic-school students varied by jurisdiction and was proportional to their representation in the jurisdiction.

The target population for the 1998 state assessment program included students in public and nonpublic schools who were enrolled in the fourth and eighth grade at the time of assessment. The sampling frame included public and nonpublic schools having the relevant grade levels in each jurisdiction. The samples were selected based on a two-stage sample design; selection of schools within participating jurisdictions, and selection of students within schools. The first-stage samples of schools were selected with probability proportional to a measure of size based on the estimated grade-specific enrollment in the schools. Special procedures were used for jurisdictions with many small schools (see Section 4.4.2), and for jurisdictions having small numbers of grade-eligible schools (See Section 4.4.4). Note that the 1998 *national* sample was a four-stage probability sample and the first-stage sampling units were counties or groups of counties.

Stratification variables were added to the sampling frame prior to sample selection. Public schools were stratified by urbanization and minority class and nonpublic schools were stratified by metro area status and type of nonpublic school. The urbanization strata were defined in terms of large or midsize central city, urban fringe of large or midsize city, large town, small town, and rural areas. Within urbanization strata, public schools were further stratified explicitly on the basis of minority enrollment in those jurisdictions with substantial Black or Hispanic student population. Minority enrollment was defined as the total percent of Black and Hispanic students enrolled in a school. Within minority strata, public schools were sorted by median household income of the ZIP code area where the school was

¹ Keith F. Rust was responsible for overseeing all sampling activities; Leslie Wallace carried out most of these activities. Jiahe Qian was responsible for the specification and coordination of the state sampling at ETS.

located. Metro area status was determined by U.S. Bureau of Census definitions as of June 30, 1993. Other stratification variables were obtained from Quality Education Data, Inc. (QED) and the National Center for Education Statistics' Common Core of Data (CCD). For details, see Sections 4.2.2 and 4.3.2. School type was a dichotomous variable (public, and Catholic or other nonpublic). Within school type, nonpublic schools were sorted by estimated grade enrollment.

From the stratified frame of public and nonpublic schools within each jurisdiction, a systematic random sample of grade-eligible schools was drawn with probability proportional to a measure of size based on the estimated grade-specific enrollment of the school. One or more sessions were sampled within each school. The number of sessions selected depended on the school's estimated grade-specific enrollment, though the overwhelming majority of schools at grade 4 were allocated a single session. In selection of schools, two sets of inclusion rules for SD/LEP students (S2 and S3 subsamples) were applied in the state assessment.

For jurisdictions that participated in an earlier trial state assessment, 25 percent of the selected public and nonpublic schools were designated at random to be monitored during the assessment field period so that reliable comparisons could be made between sessions administered with and without monitoring. For jurisdictions that did not participate in an earlier assessment, 50 percent of the selected public and nonpublic schools were designated to be monitored.

Approximately 3,150 public-school students were targeted for selection for a given grade and subject in a given jurisdiction. For nonpublic schools, the target for each grade and subject varied by jurisdiction. On average, 105 public schools and 19 nonpublic schools were selected for fourth grade in each jurisdiction and 99 public schools and 31 nonpublic schools were selected for eighth grade in each jurisdiction. The maximum numbers of public and nonpublic schools sampled in a participating jurisdiction were 121 and 36, respectively, for fourth grade. The minimum numbers of public and nonpublic schools sampled in a participating jurisdiction were 24 and 10, respectively, for fourth grade. The maximum numbers of public and nonpublic schools sampled for eighth grade were 125 and 46, respectively, for eighth grade. The minimum numbers of public and nonpublic schools sampled in a participating jurisdiction were 6 and 14, respectively, for eighth grade. Each selected school provided a list of eligible enrolled students, from which a systematic sample of students was drawn. Where possible, 30 students were selected for each session.

For the information of state school samples, Tables B-1 through B-6 in Appendix B provide the weighted participation rates and the mean values of certain school characteristics for both public and nonpublic schools, both before and after nonresponse for grade 4 reading, grade 8 reading, and grade 8 writing, respectively. Tables B-15 through B-18 provide the distributions of selected schools by sampling strata by grades for both public and nonpublic schools.

For the characteristics of interest for state student samples, Tables B-7 through B-12 in Appendix B provide the weighted student participation rates and a different set of statistics for public schools and all schools, for both full samples and assessed samples of the state assessments. The information of the unweighted and final weighted counts of assessed and excluded students can be found in Tables 11-1 through 11-6 in Chapter 11, both for public and nonpublic schools for each jurisdiction, grade and subject. For weighting procedures for state samples, including those for excluded students, see Chapter 11.

The rest of this chapter documents the procedures used to select schools for the 1998 state assessment. Section 4.2 describes the construction of the sampling frames, including the sources of school data, missing data problems, and definition of appropriate schools. Section 4.3 includes a description of the various steps in stratification of schools within participating jurisdictions. Section 4.4

describes school sample selection procedures (including new and substitute schools). Section 4.4.6 provides information about the subject sessions, sample type, and monitor status. Section 4.5 includes the steps involved in selection of students within participating schools.

4.2 TARGET POPULATIONS AND SAMPLING FRAME FOR THE 1998 STATE ASSESSMENT

4.2.1 Target Population

The target population for the 1998 state assessment included students in public and nonpublic schools who were enrolled in the fourth or eighth grade. Nonpublic schools included Catholic and other religious schools, private schools, DoDEA/DDESS (Department of Defense Education Activity/Department of Defense Domestic Dependent Elementary and Secondary Schools), and Bureau of Indian Affairs (BIA) schools. Special education schools were not included. Both subsamples of sample type S2, where accommodations were not offered to SD/LEP students, and sample type S3, where accommodations were offered, shared this target population.

4.2.2 Sampling Frame

In order to draw the school samples for the 1998 state assessment, it was necessary to obtain a sampling frame, a comprehensive list of public and nonpublic schools, in each jurisdiction. For each school, useful information for stratification purposes, reliable information about grade span and enrollment, and accurate information for identifying the school to the state coordinator (district membership, name, address) were required.

Based on prior experience with the 1992, 1994, and 1996 trial state assessments, and national assessments from 1984 to 1996, the file made available by QED was elected as the primary sampling frame. The QED list covers all U.S. states but not the territories. The CCD school file was used to obtain schools in Guam and Virgin Islands, and was used to check the completeness of the QED file.

The version of the QED file used was released in early 1997, in time for selection of the school sample. However, for some schools, the file was missing racial/ethnic minority enrollment and urbanization data (due to the inability of QED to match these schools with the corresponding CCD file). Since these variables were to be used for stratification, considerable efforts were undertaken to obtain these variables for all schools in jurisdictions. These efforts are described in the next section.

For 1998 state assessment, the files of the Private School Universe Survey (PSS), which was administered by the National Center for Education Statistics, were used as the sampling frame for nonpublic schools. The QED list was not used to form the sampling frame for nonpublic schools as had been done in the past. Following the very intensive work of unduplicating these two lists in 1996 and an evaluation of the 1996 NAEP nonpublic-school sample, it was decided to use PSS as the sole source for the sampling frame of nonpublic schools.

Tables 4-1 and 4-2 show the distribution of fourth- and eighth-grade schools as well as enrollment within schools as reported in the combined frame. Grade-specific enrollment was estimated for each school as the quotient of total school enrollment and the number of grades in the school.

Table 4-1
Distribution of Fourth-Grade Schools and Enrollment
in Combined Sampling Frame for 1998 NAEP State Assessments

Jurisdiction	Public Schools		Nonpublic Schools	
	Total Schools	Total Enrollment	Total Schools	Total Enrollment
Total	40,139	2,877,001	11,487	246,708
Alabama	764	58,729	261	6,154
Arizona	719	62,633	260	4,689
Arkansas	533	35,859	166	2,733
California	4,989	445,937	2,872	61,625
Colorado	808	51,882	277	4,779
Connecticut	571	42,507	253	5,484
Delaware	52	7,983	86	2,126
District of Columbia	113	6,330	68	1,476
DoDEA/DDESS	39	3,215	N/A	N/A
DoDEA/DoDDS	103	6,777	N/A	N/A
Florida	1,487	173,855	1,073	24,346
Georgia	1,056	108,774	448	9,469
Hawaii	177	15,343	99	2,589
Illinois	2,268	152,948	1,195	27,633
Iowa	752	37,515	224	4,677
Kansas	798	36,548	191	3,747
Kentucky	782	47,576	289	6,717
Louisiana	793	60,398	377	11,794
Maine	385	17,128	106	1,213
Maryland	804	62,012	459	10,818
Massachusetts	1,039	74,564	473	9,836
Michigan	1,919	130,496	909	18,291
Minnesota	844	64,029	469	8,647
Mississippi	458	40,674	166	4,163
Missouri	1,123	68,180	529	11,236
Montana	455	13,485	75	932
Nebraska	883	22,147	194	3,753
Nevada	254	23,038	59	1,167
New Hampshire	266	16,562	93	1,374
New Mexico	387	25,607	176	2,855
New York	2,250	207,021	1,656	42,214
North Carolina	1,140	97,817	429	7,963
Oklahoma	941	50,649	128	2,389
Oregon	751	42,503	247	3,738
Rhode Island	181	12,086	89	1,933
South Carolina	554	50,729	256	4,971
Tennessee	926	71,198	370	6,557
Texas	3,304	291,812	970	21,139
Utah	441	35,513	54	934
Virgin Islands	24	1,831	27	543
Virginia	1,051	86,583	384	7,729
Washington	1,065	74,783	390	7,122
West Virginia	532	23,168	118	1,305
Wisconsin	1,137	66,170	846	14,256
Wyoming	221	7,654	33	319

Table 4-2
*Distribution of Eighth-Grade Schools and Enrollment
in Combined Sampling Frame for 1998 NAEP State Assessments*

Jurisdiction	Public Schools		Nonpublic Schools	
	Total Schools	Total Enrollment	Total Schools	Total Enrollment
Total	17,660	2,796,611	5,378	121,361
Alabama	484	56,743	232	5,443
Arizona	364	59,746	235	4,355
Arkansas	352	36,434	126	1,968
California	1,719	393,472	2,417	53,298
Colorado	342	51,100	229	3,929
Connecticut	208	36,775	250	5,754
Delaware	30	8,506	78	1,951
District of Columbia	33	4,421	64	1,438
DoDEA/DDESS	12	1,625	N/A	N/A
DoDEA/DoDDS	65	5,093	N/A	N/A
Florida	499	168,930	911	21,194
Georgia	420	104,295	399	8,357
Hawaii	52	13,183	85	3,127
Illinois	1,370	144,236	1,121	26,481
Kansas	421	36,269	147	2,958
Kentucky	347	50,454	254	5,986
Louisiana	441	59,009	367	13,757
Maine	232	16,617	101	1,168
Maryland	239	60,756	426	10,218
Massachusetts	401	65,981	468	10,452
Minnesota	448	64,025	358	7,073
Mississippi	780	121,964	140	3,848
Missouri	652	67,282	477	10,696
Montana	319	13,277	69	841
Nebraska	580	23,402	160	3,400
Nevada	93	21,028	50	1,061
New Mexico	154	25,227	131	2,393
New York	1,020	192,295	1,496	40,224
North Carolina	521	92,213	368	6,347
Oklahoma	613	49,440	107	2,103
Oregon	338	41,762	228	3,376
Rhode Island	52	11,409	91	2,327
South Carolina	255	51,632	220	4,186
Tennessee	532	67,373	347	6,618
Texas	1,519	284,146	756	16,975
Utah	154	38,971	57	1,022
Virgin Islands	6	2,368	20	411
Virginia	343	84,608	343	7,397
Washington	430	73,529	326	6,115
West Virginia	206	23,826	99	1,143
Wisconsin	520	64,855	751	12,815
Wyoming	94	8,334	28	234

4.3 STRATIFICATION OF SCHOOLS IN THE SAMPLING FRAME

4.3.1 Stratification Variables

The stratification used for sample selection varied by school type (public or nonpublic), because the availability of information and the feasibility of performing sampling are different for public and nonpublic schools. Stratification of public schools involved four primary dimensions, whereas the stratification of nonpublic schools involved three primary dimensions. Public schools were stratified hierarchically by small or large district status, school size classification (measured by student enrollment), urbanization classification, and minority classification. For details of the resources for stratification variables, see Section 4.3.3. Nonpublic schools were stratified by school size classification, metro area status, and school type (Catholic or other nonpublic).

Public schools were further stratified implicitly by median household income (i.e., sorted in ascending or descending order) of the ZIP code area where the school was located, and nonpublic schools were further stratified implicitly by estimated grade enrollment, in order to provide some control over these variables.

Prior to the selection of the school samples, the public schools were sorted by their four stratification variables (small or large district status, school size classification, urbanization classification, and minority classification) in an order such that changes occur on only one variable at a time (also known as a serpentine order). This is accomplished by alternating between ascending and descending sort order on each variable successively through the sort hierarchy. Within this sorted list, the schools were sorted, in serpentine order, by the median household income. This final stage of sorting resulted in implicit stratification of median household income.

The counts of sampled schools by the primary stratification variables can be found in Tables B-15 through B-18 in Appendix B.

4.3.2 Missing Stratification Variables

As stated earlier, the sampling frame for the 1998 state assessment was the combination of the most recent version of the QED file available and the 1995 PSS list of nonpublic schools. The CCD file was used to extract information on urbanization (“type of location”) for public schools where this information was missing on the QED file. Any public schools with remaining missing values in urbanization or minority enrollment had their data imputed.

Schools with missing values in urbanization data were assigned the urbanization of other school records within the same state, county, and city when urbanization did not vary within the given city. Any schools still missing urbanization were assigned the modal value of urbanization within their city. Any remaining missing values were assigned individually based on city, using U.S. Bureau of Census publications.

Schools with missing values in minority enrollment data were assigned the average minority enrollment within their school district. Any schools still missing minority enrollment data were assigned values individually, using ZIP code and U.S. Bureau of Census data. The minority data were extracted only for those schools in jurisdictions in which minority stratification was performed.

Metro area status was assigned to each nonpublic school based on U.S. Bureau of Census definitions as of June 30, 1993, based on Federal Information Processing Standard (FIPS) county code,

and was found for all schools in the sampling frame. The Catholic school flag was assigned to each nonpublic school based on the PSS school type and was found for all schools in the sampling frame.

Median household income was assigned to every school in the sampling frame by merging on ZIP code with a file from Donnelly Marketing Information Services. Any schools still missing median household income were assigned the mean value of median household income for the three-digit ZIP code prefix or county within which they were located.

4.3.3 Resources for Stratification Variables

The procedures used to compile or create the stratification variables for sampling schools are described below. The resulting classifications for urbanization, minority stratification, metro area status, and school type for schools used within each participating jurisdiction can be found in Tables B-15 through B-18 in Appendix B.

4.3.3.1 Urbanization Classification

Urbanization classification was created based on the NCES type of location variable. The type of location variable contains at most seven levels:

1. *Large Central City*: A central city of a metropolitan statistical area (MSA) with a population greater than or equal to 400,000, or a population density greater than or equal to 6,000 persons per square mile;
2. *Midsized Central City*: A central city of an MSA but not designated as a large central city;
3. *Urban Fringe of Large City*: A place within an MSA of a large central city and defined as urban by the U.S. Bureau of Census;
4. *Urban Fringe of Midsized City*: A place within an MSA of a midsized central city and defined as urban by the U.S. Bureau of Census;
5. *Large Town*: A place not within an MSA, but with a population greater than or equal to 25,000 and defined as urban by the U.S. Bureau of Census;
6. *Small Town*: A place not within an MSA, with a population less than 25,000, but greater than 2,499 and defined as urban by U.S. Bureau of Census; and
7. *Rural*: A place with a population of less than 2,500 and defined as rural by the U.S. Bureau of Census.

Urbanization classification was created by collapsing type of location categories as necessary and according to specific rules until each urbanization stratum included a minimum of 10 percent of eligible students in the participating jurisdiction. The specific rules used were to first try collapsing categories 1 and 2, 3 and 4, or 5 and 6. If that did not work, categories 1-4 or 5-7 were collapsed. For an explanation of the rules used, see Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

4.3.3.2 *Minority Classification*

Minority classification was created within urbanization strata and was based on a school's percentages of Black and Hispanic students. Three different minority classification schemes were used and are described as follows:

- *Case 1:* Urbanization strata with less than 10 percent Black students and 7 percent Hispanic students were not stratified by minority enrollment (Level 0).
- *Case 2:* Urbanization strata with greater than or equal to 10 percent Black students or 7 percent Hispanic students, but not more than 20 percent of each, were stratified by ordering percent minority enrollment (Black plus Hispanic) within the urbanization classes and dividing the schools into three groups with about equal numbers of students per minority classification (Levels 1, 2, and 3).
- *Case 3:* In urbanization strata with greater than 20 percent of both Black and Hispanic students, minority strata were formed with the objective of providing equal strata with emphasis on the minority group (Black or Hispanic) of higher concentration. The stratification was performed as follows. The higher percentage minority group provided the primary stratification variable; the other group gave the secondary stratification variable. Within urbanization class, the schools were first sorted based on the primary stratification variable; then they were divided into two groups of schools containing approximately equal numbers of students based on estimated grade enrollment. Within each of these two groups, the schools were sorted by the secondary stratification variable and subdivided into two subgroups of schools containing approximately equal numbers of students. As a result, within urbanization strata there were four minority classifications (e.g., low Black/low Hispanic, low Black/high Hispanic, high Black/low Hispanic, and high Black/high Hispanic (Levels 4, 5, 6, and 7).

The minority groups and classifications were formed solely for the purpose of creating efficient stratification design at this stage of sampling. These classifications are not directly used in analysis and reporting of the data, but will act to reduce sampling errors for scale score estimates.

4.3.3.3 *Median Household Income*

The data on median household income was related to the ZIP code area in which the school is located. The data were derived from the 1990 Census and were obtained from Donnelly Marketing Information Services.

4.3.3.4 *Metro Area Status*

All schools in the sampling frame were assigned a metro area status based on their Federal Information Processing Standard (FIPS) county code and Office of Management and Budget (OMB) metropolitan area Definitions as of June 30, 1993. This field indicated if a school was located within a metropolitan area or not.

4.3.3.5 School Type for Nonpublic Schools

All nonpublic schools were assigned a school type (Catholic or other nonpublic) based on their PSS school-type variable.

4.4 SCHOOL SAMPLE SELECTION

When the public and nonpublic schools in the sampling frame were stratified within each jurisdiction, a sample of about 100 grade-eligible schools was drawn with probability proportional to a measure of size (PPS) based on the estimated grade-specific enrollment of the school. In practice, the PPS sampling was implemented by the PPS systematic sampling. The number of schools selected generally did not vary by the sizes of jurisdictions. In each selected school, students were selected by systematic sampling. The PPS sampling schools and systematic sampling for students would give each student an equal probability of selection (Kish, 1965).

One or more sessions were sampled within each school. The number of sessions selected depended on the school's estimated grade-specific enrollment, though the overwhelming majority of schools at grade 4 were allocated a single session.

4.4.1 Measure of Size and Sample Selection

For each grade-eligible school, an estimated grade enrollment (EGE) was obtained by dividing the school's total student enrollment by the school's number of grades. Based on previous assessments, the EGE provided appropriate estimates for the sampling process. The estimated grade enrollment was not used directly in sample selection as the measure of size of grade students in schools. Instead, the measure of size was based on the following function of estimated grade enrollment. Tables 4-3 and 4-4 define the relationship between the estimated grade enrollment and measure of size in sample selection for grades 4 and 8.

Table 4-3

Estimated Grade Enrollment and Measure of Size, Grade 4

Estimated Grade Enrollment (EGE)	Measure of Size
$EGE < 10$	15
$10 \leq EGE < 20$	$1.5 \times EGE$
$20 \leq EGE < 33$	30
$33 \leq EGE$	EGE

Table 4-4

Estimated Grade Enrollment and Measure of Size, Grade 8

Estimated Grade Enrollment	Measure of Size
$EGE < 10$	30
$10 \leq EGE < 20$	$3 \times EGE$
$20 \leq EGE < 65$	60
$65 \leq EGE$	EGE

Schools were designated as being in “small” or “large” districts and were assigned to one of two school size classifications. A large district was defined as a district containing 20 percent or more of a jurisdiction’s student population. All other districts were considered small. Schools were assigned to the large school size classification if their estimated grade enrollment was greater than 19 students. Otherwise, schools were assigned to the small school size classification.

A sample of schools was then selected for each jurisdiction with probability proportional to each school’s measure of size. The sampling frame of schools was sorted in systematic order prior to sample selection, as follows:

- Public schools
 - ◆ Small or large district status
 - ◆ School size classification
 - ◆ Urbanization stratum
 - ◆ Minority stratum
 - ◆ Median household income

- Nonpublic schools
 - ◆ School size classification
 - ◆ Metro area status
 - ◆ Catholic/nonCatholic
 - ◆ Estimated grade enrollment

Sorting the sampling frame in a specific order prior to systematic sample selection ensures that the sampled schools represent a variety of population subgroups. Tables B-15 through B-18 in Appendix B provide the distributions for the counts of selected schools by sampling strata by grades for both public and nonpublic schools. Tables B-19 through B-22 show weighted school participation rates and counts of sampled schools by jurisdiction, grade, and subject for both public and nonpublic schools.

4.4.2 Sparse State Sample Option

The standard NAEP sample design requirements are burdensome for jurisdictions whose student populations are largely concentrated in small schools. In these jurisdictions, large numbers of schools must be selected in order to reach the required student sample sizes. Thus these jurisdictions bear an exceptionally large burden in school recruitment and assessment administrations, but are not eligible for any reduction in sample size under the reduced sample option, which is described in Section 4.5.2. In an effort to address this problem, while at the same time ensuring that adequate sampling standards for representation and precision were assured, the sparse state sample option was offered to qualifying jurisdictions for the first time in 1998. The jurisdictions eligible for this option were those that would have had at least 120 public schools selected under the full sample. Under the option, a proportional sample of schools was selected and the school and student sample sizes were reduced such that the following conditions held:

1. The number of schools selected was at least 115 (noting that many states have been assigned sample sizes close to this in the past).
2. The number of schools selected for each individual subject was at least 80 (so as to assure reliable sample inferences can be made for each subject).

3. The sampling probability of each individual school was at least half as great as for a full sample (this is to ensure that all parts of the jurisdiction's student population are adequately represented).
4. The largest schools were all retained in the sample, and the student sample sizes in these schools were also retained.

Note that the third and fourth conditions taken together imply that all of the large schools were retained and at least half of the small schools were retained. In practice, this usually meant that jurisdictions had their samples reduced from over 120 schools to 115, since the first condition is usually the most restrictive. Also, the student sample would be at least a half sample, and usually was substantially more than that. The eligible jurisdictions were Alaska, Kansas, Montana, Nebraska, North Dakota, Oklahoma, and South Dakota at grade 4; and Alaska, Montana, Nebraska, North Dakota, South Dakota, Vermont, and Wyoming at grade 8. The effect of the Sparse State Sample Option on sample sizes is shown in Table 4-5 for participating jurisdictions exercising the option. Note that Alaska, Nebraska, and North Dakota at grade 4, and Nebraska and North Dakota at grade 8 also requested the option, but later decided not to participate (at least in the public-school portion of the assessment).

Table 4-5
*The Effect of the Sparse State Option on Sample Sizes, by Grade
for Jurisdictions Exercising the Option*

Grade	Jurisdiction	Original School Sample	Reduced School Sample	Reduced Student Sample as a Percentage of the Original Student Sample
4	Montana	132	115	88%
8	Montana	139	116	89%
8	Oklahoma	130	115	89%

4.4.3 Control of Overlap of School Samples for National Educational Studies

The issue of school sample overlap has been relevant in all rounds of NAEP in recent years. To avoid excessive burden on individual schools, NAEP has developed a policy for 1998 of avoiding overlap between national and state samples. This was to be achieved without unduly distorting the resulting samples by introducing bias or substantial variance. The procedure used was an extension of the method proposed by Keyfitz (1951). The general approach is given in the *Technical Report of the NAEP 1994 Trial State Assessment Program in Reading* (Mazzeo, Allen, & Kline, 1995). It is summarized briefly as follows.

To control overlap between NAEP state and national samples, a procedure was used that conditions on the national NAEP PSU sample. This simply means that national school selection probabilities that were conditional on the selection of national sample PSUs (i.e., within PSU school selection probabilities) were used in determining state NAEP school selection probabilities. No adjustments were made to state NAEP school selection probabilities in jurisdictions where there were no national NAEP PSUs selected. This procedure reduces the variance of the state samples, although it leads to a greater degree of sample overlap than if unconditional national selection probabilities had been used in the procedure for controlling overlap between state and national samples. The procedure also recognizes the impact of the heavy within-PSU sampling in noncertainty PSUs in some jurisdictions. Schools to be included with certainty in the state sample are not subject to overlap control, as such schools are self-representing in the state sample. Excluding such schools on a random basis would add

extra variance to the state estimates. For actually drawing the state samples, a conditional probability of selection was used that was conditional on the selection of PSUs for the national NAEP samples. This procedure in general gave state NAEP conditional selection probabilities that are smaller than the unconditional state selection probabilities for schools that had been selected for the national sample. The state NAEP conditional selection probabilities were such that the unconditional probabilities obtained by integrating over the national sampling process were the required state NAEP probabilities, had overlap control not been implemented. Thus, a school’s unconditional probability of selection for state NAEP was the same regardless of whether overlap control had been implemented. Counts of school selection for both state and national NAEP are found in Table 4-6.

Table 4-6
Number of Schools Selected for Both State and National NAEP, by Grade and School Type

State NAEP		National NAEP Grade		
Grade	School Type	4	8	12
4	Public	11	4	2
4	Nonpublic	0	18	4
8	Public	6	38	9
8	Nonpublic	15	3	28

4.4.4 Selection of Schools in Small Jurisdictions

All schools in jurisdictions with small numbers of public schools were selected. This was also true for the nonpublic schools in two jurisdictions. The jurisdictions and grades are shown in Table 4-7.

Table 4-7
Jurisdictions Where All Schools Were Selected, by Grade and School Type

Jurisdiction	Public		Nonpublic	
	Grade 4	Grade 8	Grade 4	Grade 8
Delaware	*	*	—	—
District of Columbia	*	*	—	*
DoDEA/DDESS	*	*	—	—
DoDEA/DoDDS	*	*	—	—
Hawaii	—	*	—	—
Rhode Island	—	*	—	—
Virgin Islands	*	*	*	*

4.4.5 Selection of New Public Schools

A sample of new public schools was drawn to properly reflect additions to the target population occurring after the sampling frame building information was created. A district-level file was constructed from the QED school-level file. The district-level file was divided into a “small” districts file that was not used in the selection of new schools, and a “medium and large” districts file that was used for this purpose. Small districts consisted of those districts in which there were at most three schools on the aggregate frame and no more than one fourth-, one eighth-, and one twelfth-grade school. New schools in

small districts were identified during school recruitment. The remainder of districts were denoted as “medium and large” districts.

A sample of medium and large public-school districts was drawn in each jurisdiction. All districts were selected in Delaware, the District of Columbia, Hawaii, and Rhode Island. The remaining jurisdictions in the file of medium and large districts (eligible for sampling) were divided into two files within each district. Two districts were selected per jurisdiction with equal probability among the smaller districts with combined enrollment of less than or equal to 20 percent of the state enrollment in the medium and large districts file. From the rest of the file, eight districts were selected per jurisdiction with probability proportional to enrollment. The breakdown given above applied to all jurisdictions that had at least eight large districts. In jurisdictions with fewer than 8 large districts, all of the large districts were selected, and then enough small districts were selected to make 10 districts selected altogether. The 10 selected districts in each jurisdiction were then sent a listing of all their schools that appeared on the file, and were asked to provide information about the new schools not included in the file. These listings, provided by selected districts, were used as sampling frames for selection of new public schools.

The eligibility of a school was determined based on the grade span. A school was also classified as “new” if a change of grade span was such that the school status changed from ineligible to eligible. The average grade enrollment for these schools was set to the average grade enrollment before the grade-span change. The schools found eligible for sampling due to the grade-span change were added to the new school selection frame.

The probability of selecting a school was

$$\text{minimum} \left\{ \frac{\text{sampling rate} \cdot \text{measure of size}}{P(\text{district})}, 1 \right\},$$

where $P(\text{district})$ was the probability of selection of a district and the sampling rate was the rate used for the particular jurisdiction in the selection of the original sample of schools. For example, in a state where the sampling rate is .005, a school with 100 eligible students in a district selected with probability .75 would have a probability of selection of .67 $[(.005 \times 100)/.75]$.

In each jurisdiction, the sampling rate used for the main sample of grade-eligible schools was used to select the new schools. Additionally, all new eligible schools coming from small districts (those with at most one grade 4 and one grade 8 school and at most three schools on the aggregate frame) that had a school selected in the regular sample for the fourth grade were included in the sample with certainty. In the 1998 state assessment, there were no such schools.

Table 4-8 shows the number of new schools coming from the medium and large and small districts for the fourth- and eighth-grade samples.

Table 4-8
*NAEP 1998 Distribution of New Schools Coming from
 Districts Designated as “Medium” or “Large”**

Jurisdiction	Grade 4 Samples	Grade 8 Samples
Total	70	49
Alabama	2	3
Alaska	—	0
Arizona	5	5
Arkansas	0	1
California	1	1
Colorado	3	2
Connecticut	3	0
Delaware	13	2
District of Columbia	1	5
Florida	0	0
Georgia	0	0
Guam	—	0
Hawaii	2	4
Illinois	0	—
Indiana	—	0
Iowa	1	0
Kansas	0	—
Kentucky	1	0
Louisiana	4	4
Maine	3	2
Maryland	0	2
Massachusetts	6	1
Michigan	1	0
Minnesota	1	0
Mississippi	0	0
Missouri	2	2
Montana	0	0
Nebraska	4	2
Nevada	6	1
New Hampshire	0	0
New Jersey	—	0
New Mexico	1	1
New York	1	3
North Carolina	1	2
North Dakota	—	0
Oklahoma	0	—
Oregon	0	0
Rhode Island	0	0
South Carolina	2	0
Tennessee	0	0

* In the 1998 assessment, there were no sampled schools designated “small”.

(continued)

Table 4-8 (continued)
*NAEP 1998 Distribution of New Schools Coming from
 Districts Designated as “Medium” or “Large”**

Jurisdiction	Grade 4 Samples	Grade 8 Samples
Texas	1	3
Utah	1	0
Vermont	—	0
Virgin Islands	1	—
Virginia	0	0
Washington	0	0
West Virginia	0	0
Wisconsin	0	1
Wyoming	0	2
DoDEA/DDESS	2	0
DoDEA/DoDDS	1	0

* In the 1998 assessment, there were no sampled schools designated “small”.

4.4.6 Assigning Subject, Sample Type, and Monitor Status

For the sampled schools, one or more subject sessions were assigned within each school. The number of sessions selected depended on the school’s estimated grade-specific enrollment, though the overwhelming majority of schools at grade 4 were allocated a single session.

Rules for assigning subjects (reading at grades 4 and 8; writing at grade 8 only) varied by grade. All fourth-grade schools were assigned to participate in reading assessments. All eighth-grade schools with 25 or more students were assigned to participate in both reading and writing assessments. Schools with fewer than 25 students were assigned one randomly selected subject.

The 1998 state assessment used the inclusion rules from 1996 for SD/LEP students (see Chapter 3) for two different sets of schools (S2 and S3 subsamples). The S2 subsample was not given the option of taking the assessment with accommodations. The S3 subsample was given the option of offering SD/LEP students accommodations. A sample type variable was created to reflect which set of rules to use within a given school. The sample type variable applied to reading only because writing was always administered using S3 rules including accommodations.

The schools assigned reading were sorted by stratum (public and nonpublic) and school ID and then assigned sample type in an alternating pattern within the sorted list. The inclusion rules for SD/LEP students are described in Chapter 3.

Since the state assessments were given by local administration, Westat monitored field assessments in some of the schools in the state assessments as they did in the national assessments to make reliable comparisons between both assessments. Jurisdictions received 25 or 50 percent monitoring of sessions depending on previous participation in the state assessments. All jurisdictions received 25 percent monitoring except Kansas, where 50 percent monitoring was used. The sampled schools were sorted by stratum, subject, sample type, and school ID and then assigned the two levels of monitoring in an alternating pattern.

4.4.7 School Substitution and Retrofitting

A substitute school was assigned to each sampled school (to the extent possible) prior to the field period through an automated substitute selection mechanism that used distance measures as the matching criterion. Schools were also required to be of the same type (i.e., public, nonpublic, BIA, and DoDEA schools were only allowed to substitute for each other), and substitutes for nonpublic, BIA, and DoDEA schools were required to come from within the same district. Public-school substitutes were required to come from different districts. Two passes were made at the substitution, with the second pass raising the maximum distance measure allowed and removing the different district assignment requirement for public schools. This strategy was motivated from the fact that most public-school nonresponse occurs at the school district level.

A distance measure was used in each pass and was calculated between each sampled school and each potential substitute. The distance measure was equal to the sum of four squared standardized differences. The differences were calculated between the sampled and potential substitute school's estimated grade enrollment, median household income, percent Black enrollment and percent Hispanic enrollment. Each difference was squared and standardized to the population standard deviation of the component variable (e.g., estimated grade enrollment) across all grade-eligible schools and jurisdictions. The potential substitutes were then assigned to sampled schools by order of increasing distance measure. An acceptance limit was put on the distance measure of .60 for the first pass. A given potential substitute was assigned to one and only one sampled school. Some sampled schools did not receive assigned substitutes (at least in the first pass) because the number of potential substitutes was less than the number of sampled schools or the distance measure for all remaining potential substitutes from different districts was greater than .60.

In the second pass, the different district constraint for public schools was lifted and the maximum distance allowed was raised to .75. This generally brought in a small number of additional assigned substitutes. Although the selected cutoff points of .60 and .75 on the distance measure were somewhat arbitrary, they have been used since 1994 after being decided upon for the 1994 trial state assessment by a group of statisticians reviewing a large number of listings beforehand and finding a consensus on the distance measures at which substitutes began to appear unacceptable.

Jurisdictions that did not receive substitutes for all selected schools were allowed to retrofit unused substitutes after part of the field period elapsed. Substitutes that were assigned to cooperating or ineligible original selections were free to be assigned to other original selections that did not receive substitutes. These free substitutes were put back into the substitute selection mechanism described above and allowed to pair up with other original selections.

The information about the number of substitutes provided and the number participating in each jurisdiction can be found in the report *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000). Of the 45 participating jurisdictions, 42 were provided with at least one substitute at grade 4, and 41 were provided with at least one substitute at grade 8. Among jurisdictions receiving no substitutes, the majority had 100 percent participation from the original sample. The total number of substitutes associated with nonparticipating original schools were 524, 600, and 400 for grade 4 reading, grade 8 reading, and grade 8 writing, respectively. The numbers of substitutes that participated were 153, 93, and 97, respectively.

4.5 STUDENT SAMPLE SELECTION

4.5.1 Student Sampling and Participation

To select a student sample, schools initially sent a complete list of students to a central location in November 1997. They were not asked to list students in any particular order, but were asked to implement checks to ensure that all grade-eligible students were listed. Based on the total number of students on this list, the student listing form, sample line numbers were generated for student sample selection. To generate these line numbers, the sampler entered the number of students on the form and the number of sessions into a personal computer that had been programmed with the sampling algorithm. The program generated a random start that was used to systematically select the student line numbers (30 per session). To compensate for new enrollees not on the student listing form, extra line numbers were generated for a supplemental sample of new students.

After the student sample was selected, the administrator at each school identified students who were incapable of taking the assessment either because they were identified as students with disabilities (SD) or because they were classified as being of limited English proficiency (LEP). New inclusion rules, which were first used in 1996, were used. These rules were meant to clarify the procedure for identifying whom to exclude from NAEP and to provide wider inclusion of SD and LEP students. More details on the procedures for student exclusion are presented in Chapter 5 of this report and in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

When the assessment was conducted in a given school, a count was made of the number of nonexcluded students who did not attend the session. If this number exceeded three students, to reduce nonresponse error, the school was instructed to conduct a makeup session, to which all students who were absent from the initial session were invited. A summary of the distribution of the student samples, student exclusion rates, and response rates by grade, school type, and jurisdiction can be found in Tables B-23 to B-28 in Appendix B.

4.5.2 The Reduced Sample Option

Jurisdictions with fewer than 100 schools, and schools assigned more than two sessions at grade 4 or more than three sessions at grade 8 were given the option to reduce the expected student sample size in order to reduce testing burden and the number of multiple-testing sessions for participating schools. If jurisdictions chose to exercise this option, the estimates obtained from the assessment were more variable than they otherwise would have been. In general, jurisdictions could reduce student sample sizes by adjusting the number of sessions with participating schools subject to the following constraints:

- The minimum number of sessions per school had to be equal to 1.
- The maximum number of sessions per school had to be equal to 2 at the fourth grade and 3 at the eighth grade.
- The expected student size from the reduced sample was greater than or equal to half of the original student sample size.

To reduce testing burden and the number of testing sessions for participating schools, Delaware exercised the reduced sample option at both grade levels.

Chapter 5

FIELD OPERATIONS AND DATA COLLECTION¹

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5.1 INTRODUCTION

This chapter describes the field operations and data collection activities for the 1998 National Assessment of Educational Progress (NAEP). Traditionally, NAEP is comprised of main national samples, long-term trend (LTT) national samples, and state samples. For 1998, LTT was not scheduled, however, so the 1998 assessment program consisted of main, national, and state samples, as described in this chapter. The national NAEP component typically involves new assessment items, and may include new subject areas and innovative features. The national assessments are based on national probability samples of schools and students that allow for regional and national reporting only. The state assessment, the other major component of NAEP for 1998, comprises the state program that uses national NAEP assessment materials and involves much larger sample sizes per state (or jurisdiction), so that results can be reported for each participating state or jurisdiction.

The organization and operation of 1998 NAEP field activities are described in the remaining sections of this chapter. For all components, NAEP guarantees the anonymity of participants, and student or teacher names are never recorded on assessment booklets nor removed from the schools. NAEP results are reported on the national level, by region of the country, by state, or by demographic subgroup.

5.1.1 Organization of the National Assessment for 1998

The 1998 national assessment was conducted in a sample of approximately 2,700 public and nonpublic schools located in 94 geographic areas called primary sampling units (PSUs) throughout the states and the District of Columbia. The PSUs were selected by Westat to represent the nation as a whole.

Assessments for national NAEP were conducted from January through March at grades 4, 8, and 12. Students were assessed in reading, writing, and civics, and this included a special assessment in civics only, which established a trend line (but not long-term trend) from the earlier civics assessment in 1988. The civics special trend assessment was conducted at the same time and in some of the same schools as national NAEP. Three session types were administered in 1998:

- *Reading:* The reading assessment was based on the existing frameworks, which established a new trend line in 1992 (NAGB, 1990). The reading booklets included the background questions in the front of the booklet.

¹ Lucy M. Gray and Mark M. Waksberg develop survey operations and procedures and monitor field activities for the NAEP assessments under the direction of Nancy W. Caldwell.

- *Writing/Civics*: The writing and civics assessments were combined into one session, with the different booklets spiraled together. These assessments were based on new frameworks developed for the 1997 field test (Center for the Evaluation, Standards, and Student Testing [CRESST], 1996; Council of Chief State School Officers [CCSSO], 1996)
- *Civics Special Trend*: The civics special trend study was based on the frameworks developed for the 1988 assessment (CCSSO, 1996), and was distinct from the civics assessment included with the writing tests. These sessions used the same materials used in 1988, including an answer sheet separate from the test booklets.
- Most schools had two of the possible three types of sessions administered in 1998 (reading, writing/civics, and/or civics special trend). In some of the smallest schools, only one of the types of sessions was administered. Following the precedent established in 1996, accommodations (described in Section 5.1.1.2) were offered for the writing/civics sessions and for half of the reading sessions, but none for the civics special trend.

In order to reduce the burden on the participating schools, NAEP field staff performed most of the work associated with the assessments. Introductory contacts and meetings (if needed) occurred in the fall of 1997 to enlist cooperation and explain the assessment procedures to district and school representatives and to set a mutually agreed-upon assessment date for each school. The assessment supervisor visited the school a week or two before the assessment to select the sample of students. The assessment sessions were conducted by exercise administrators, also members of the NAEP field staff, under the direction of the assessment supervisor. At the conclusion of the assessment in a school, field staff coded demographic information on the booklet covers and shipped the completed materials to National Computer Systems (NCS), the processing subcontractor for NAEP (see Chapter 6 for more detailed information on processing assessment materials). For reference, the national NAEP field staff administrative structure is summarized in the chart below.

WESTAT NATIONAL NAEP FIELD STAFF ADMINISTRATIVE STRUCTURE
Field Director <i>Oversees all aspects of field operations</i>
Field Managers <i>Report to Westat Field Director and oversee supervisors who have direct contact with schools</i>
Field Supervisors <i>Report to a specific field manager, gain cooperation of schools, select student samples, arrange and supervise assessments, assigning assessments to exercise administration</i>
Exercise Administrators <i>Conduct assessment sessions and assist with field paperwork/record keeping under direct supervision of a field supervisor</i>

5.1.1.1 Additional Special Studies

Apart from the civics special trend study, two other special studies, each requiring additional interaction with school personnel, were carried out in conjunction with the national 1998 assessment. A classroom-based writing study was designed to explore methods of assessing students' writing abilities at grades 4 and 8 by using written assignments that students had completed as part of their school curriculum. A High-School Transcript Study, similar to the transcript study that took place in 1994, was conducted in a number of grade 12 schools included in the main assessment.

These results from these two studies will be available in forthcoming reports. More information about the studies is provided in section 5.3.2.

5.1.1.2 Exclusions and Accommodations for Students

Historically, a small proportion (less than 10%) of the sampled students have been "excluded" from NAEP assessment sessions because, according to school records, they are students with either disabilities (SD) or limited English language proficiency (LEP) who have been determined to be incapable of participating meaningfully in the assessment. More recently, especially with the passage of the Individuals with Disabilities Education Act, increased attention has been given to these students and to including as many of them as possible in NAEP sessions. NAEP addressed these concerns through a 1996 special study (Mazzeo, Carlson, Voelkl, & Lutkus, 1999) that used both old and new "inclusion" criteria and (in some schools) offered accommodations for testing students with disabilities, limited English proficiency, or both (SD/LEP).

Results of the 1996 assessment indicated that the revision of the criteria for including students had little impact on the numbers of students included; therefore, for 1998 and beyond, the revised criteria were used because they are most current. The 1996 data also indicated that providing accommodations resulted in greater inclusion of students who might previously have been excluded from NAEP.

The inclusion criteria used in the 1998 NAEP assessments fell into two categories—students with disabilities (SD) and students with limited English proficiency (LEP). A student identified as having a disability (SD), that is, a student with an Individualized Education Plan (IEP) or equivalent classification, was to be excluded from the NAEP assessment if any of the three following conditions applied:

- The IEP team or equivalent group determined that the student was unable to participate in assessments such as NAEP.
- The student's cognitive functioning was so severely impaired that he or she could not participate.
- The student's IEP required that the student be tested with an accommodation that is not permitted by NAEP, and the student could not demonstrate his or her proficiency in reading, writing, or civics without that accommodation.

A student who was identified as limited English proficient (LEP) and was a native speaker of a language other than English was to be excluded from the NAEP assessment only if both of the following conditions applied:

- The student received language arts instruction primarily in English for less than three school years including the current year.

- The student was unable to demonstrate his or her proficiency in reading, writing, or civics, even with an accommodation permitted by NAEP.

Decisions on exclusion were made by the assessment supervisor in consultation with school staff and were guided by the SD/LEP questionnaires completed by the school staff. This questionnaire, which was completed for each SD/LEP student in the sample by someone at the school knowledgeable about the student, asked about the student's background and the special programs in which the student participated.

Because the 1998 reading assessment results were to be compared to those from the 1992 assessment, one group of students was assessed under conditions similar to those in 1992. Thus, in half of the 1998 reading sessions, accommodations were not permitted. To be able to evaluate the differences in results that occur when students are assessed with accommodations, accommodations *were* permitted in the other half of the reading sessions.

For the writing/civics sessions, because new trend lines are being established, accommodations were made available to all students, if needed or appropriate. Finally, for civics special trend sessions, accommodations were not permitted for any students.

Accommodations included but were not limited to extended time to answer the test questions, large-print booklets, bilingual dictionaries, scribe or use of computer to record answers, session in which the test administrator would read the test questions aloud, sessions with a smaller number of students than in the regular sessions, and one-on-one test administrations.

5.1.2 Organization of the State Assessment for 1998

Forty-four states, the District of Columbia, Virgin Islands, and Guam volunteered for the 1998 state assessment, as did the Department of Defense Domestic Dependent Elementary and Secondary Schools (DoDEA/DDESS) and the Department of Defense Dependents Schools (DoDEA/DoDDS).

Table 5-1 identifies the jurisdictions participating in the state assessment. For the state program, assessments were conducted in one subject, reading, at the fourth grade and in reading and writing at the eighth grade.

Data collection for the 1998 state assessment involved a collaborative effort between the participating jurisdictions and the NAEP contractors, especially Westat, the field administration contractor. Westat's responsibilities included:

- Selecting the sample of schools and students for each participating jurisdiction
- Developing the administration procedures and manuals
- Training state and school personnel to conduct the assessments, and
- Conducting an extensive quality assurance program which involves observing and monitoring 25 percent of the state NAEP sessions conducted by school staff.

Table 5-1
Jurisdictions Participating in the 1998 State Assessment Program

Alabama	Guam	Missouri	South Carolina
Alaska	Hawaii	Montana	Tennessee
Arizona	Illinois ²	Nebraska	Texas
Arkansas	Indiana	Nevada	Utah
California	Iowa	New Hampshire	Vermont
Colorado	Kentucky	New Jersey	Virginia
Connecticut	Louisiana	New Mexico	Washington
Delaware	Maine	New York	West Virginia
DoDEA/DDESS ¹	Maryland	North Carolina	Wisconsin
DoDEA/DoDDS ¹	Massachusetts	North Dakota	Wyoming
District of Columbia	Michigan	Oregon	
Florida	Minnesota	Pennsylvania	
Georgia	Mississippi	Rhode Island	

¹ DoDEA refers to the Department of Defense Education Activity. Its domestic schools (Department of Defense Domestic Dependent Elementary and Secondary Schools [DDESS]) and its overseas schools (Department of Defense Dependents Schools [DoDDS]) participated in the state assessment program.

² Illinois participated in the assessment; however, results were not reported due to low school participation rates prior to the addition of substitute schools.

Each jurisdiction volunteering to participate in the 1998 program was asked to appoint a state coordinator. In general, the coordinator was the liaison between NAEP/Westat staff and the participating schools. In particular, the state coordinator was asked to:

- Gain the cooperation of the selected schools
- Assist in the development of the assessment schedule in the selected schools
- Receive the lists of all grade-eligible students from the schools
- Coordinate the flow of information between the schools and NAEP
- Provide space for the Westat state supervisor to use when selecting the samples of students
- Notify assessment administrators about training and send them their assessment manuals, and
- Send the lists of sampled students to the schools.

Westat hired and trained six field managers for the state assessment. Each field manager was responsible for working with the state coordinators of seven to eight jurisdictions and for overseeing assessment activities. The primary tasks of the field managers were to:

- Obtain information from state coordinators about cooperation and scheduling
- Make sure the arrangements for the assessments were set and assessment administrators identified, and
- Schedule the assessment administrator training sessions.

Westat also hired and trained a state supervisor for each jurisdiction. The 1998 state assessment involved about the same number of state supervisors (Westat staff) as the 1992, 1994, and 1996 assessments, since approximately the same number of jurisdictions were involved each year. In addition, three troubleshooters were trained in case any state supervisor was unable to complete their assignment. The primary tasks of the state supervisor were to:

- Select the samples of students to be assessed
- Recruit and hire the quality control monitors throughout their jurisdiction
- Conduct in-person assessment administration training sessions, and
- Coordinate the monitoring of the assessment sessions and makeup sessions.

At the school level, an assessment administrator(s) was appointed (by the school), and this person, often a teacher, was responsible for preparing for and conducting the assessment session(s) in one or more schools. These individuals were usually school or district staff and were trained by Westat staff. The assessment administrator's responsibilities included:

- Receiving the list of sampled students from the state coordinator
- Identifying sampled students who should be excluded
- Distributing assessment questionnaires to appropriate school staff and collecting them upon their completion
- Notifying sampled students and their teachers
- Administering the assessment session(s)
- Completing assessment forms, and
- Preparing and shipping the completed assessment materials.
- Decisions on exclusion of students (if any) were made in consultation with school staff and were guided by the SD/LEP questionnaires completed by the school staff.

In addition, Westat hired several quality control (QC) monitors in each jurisdiction to monitor assessment sessions. The number of QC monitors varies, from about 4 to 6, by state according to the number of schools samples in a state. The QC monitors report to Westat supervisors and are responsible for observing a subset of the state NAEP sessions conducted by the school staff. For reference, the state NAEP field staff administrative structure is summarized in the following chart.

WESTAT STATE NAEP FIELD STAFF ADMINISTRATIVE STRUCTURE
Field Director <i>Oversees all aspects of field operations</i>
Field Managers <i>Work directly with state coordinators on gaining cooperation of schools and oversee state supervisors (Westat staff) who select student samples and supervise QC monitors</i>
Field Supervisors <i>Select student samples at state coordinators office, train assessment administrators (chosen by schools) to conduct assessments, schedule and oversee assessment observation visits made by quality control monitors</i>
Assessment Administrators <i>Are school (or district) staff appointed by the school to conduct one or more state NAEP assessment sessions in that school</i>
Quality Control Monitors <i>Are hired and trained by Westat field managers and field supervisors, interview each school for feedback on the assessment and to visit a specific subsample of schools to observe the administration of the NAEP session by school staff; report directly to field supervisor</i>

5.2 PREPARING FOR THE ASSESSMENTS

5.2.1 Gaining the Cooperation of Sampled Schools

The process of gaining cooperation of the schools selected for the NAEP assessments, both national and state, began in August 1997 with a series of letters and contacts with state and district-level officials. The National Center for Education Statistics (NCES) first sent each jurisdiction a letter announcing NAEP plans for 1998. Westat then contacted the state test directors or NAEP state coordinators in each sampled state to notify them of the districts and schools selected in their states. In the 41 jurisdictions participating in the state assessment that also had schools sampled for the national assessment, the state received the list of districts and schools sampled for both the national and state assessments.

From September through early December 1997, Westat sent lists of schools sampled for the assessments and other NAEP materials to district superintendents, diocesan superintendents of Catholic schools, and principals or heads of schools in other nonpublic schools, inviting their participation. These initial mailings paved the way for telephone contacts by NAEP field supervisors who were assigned the task of gaining cooperation and scheduling assessment dates.

The schedule for project activities for the 1998 national and state assessments was as follows:

August 1997	<p><i>Department of Education sent first letter to chief state school officers and state test directors.</i></p> <p><i>Westat sends state coordinators the lists of schools selected for 1998 state assessments along with informational materials. Similar mailings continue, to state test directors, through mid-September 1997 for national NAEP schools.</i></p>
August/September 1997	<p><i>Westat field managers visit states to train state coordinators to use computerized state NAEP field management system for recording participation status of the state NAEP schools.</i></p>
September 24–27, 1997	<p><i>Training session held for national assessment schedulers.</i></p>
Mid-to-Late September 1997	<p><i>Westat sent samples and informational materials to school districts, if not already sent by state coordinators.</i></p>
Mid-September – December 1, 1997	<p><i>Supervisors contacted districts and schools to secure cooperation and to schedule assessments in national NAEP schools.</i></p> <p><i>Supervisors conducted introductory meetings for the national NAEP assessment, by telephone (or in person if requested by districts or schools). Westat selected substitutes for refusals.</i></p> <p><i>Supervisors recruited, hired, and trained exercise administrators for national NAEP.</i></p>
September – November 1997	<p><i>State coordinators obtained cooperation from districts and public schools for state NAEP samples. State coordinators reported participation status to Westat field managers via hardcopy lists or computer files.</i></p> <p><i>Westat field staff secured cooperation from sampled nonpublic schools (for state NAEP samples).</i></p> <p><i>State coordinators sent summary of school tasks, student listing forms, and new enrollee student listing forms to participating public schools in state NAEP samples.</i></p>
October 6 – November 12, 1997	<p><i>Westat sent student listing forms and new enrollee listing forms to participating nonpublic schools in state NAEP samples.</i></p>

November 5 – 8, 1997	<i>Training session for state NAEP supervisors.</i>
Early December 1997	<i>Supervisors sent informational materials to principals and school coordinators and Westat send letters confirming assessment schedules to each national NAEP school.</i>
December 1 – 12, 1997	<i>State NAEP supervisors visited state coordinator offices to select student samples and prepare administration schedules listing the students selected for each session in public schools selected for state NAEP. The state supervisor prepared a package to be sent to each public school containing the administration schedules and the instructions for assessing students with disabilities and/or limited English proficiency.</i>
December 1 – 5, 1997	<i>Westat provided schedule of state NAEP assessment administrator (AA) training sessions and copies of the Manual for Assessment Administrators to state coordinators for distribution.</i>
	<i>Westat distributed state NAEP AA training schedules and manuals directly to nonpublic schools.</i>
December 8, 1997 – January 2, 1998	<i>State coordinator notified state NAEP AAs of the date and time of training and sent each a copy of the Manual for Assessment Administrators.</i>
December 9 – 15, 1997	<i>National NAEP assessment supervisor training session was held.</i>
January 5 – March 27, 1998	<i>Student samples were selected for national NAEP and assessments were administered. Makeup sessions, if needed, were held from March 30 to April 3, 1998.</i>
January 7 – 10, 1998	<i>Training session was conducted for quality control monitors (see Section 5.4.2) who observe state NAEP AAs in 25% of state NAEP sessions.</i>
January 12 – 30, 1998	<i>Westat state NAEP supervisors conducted assessment administrator training sessions.</i>
	<i>Student samples were selected for nonpublic schools in state NAEP training sessions for state NAEP AAs.</i>

January 19 – February 13, 1998

State coordinators sent packages containing administration schedules and instructions for assessing students with disabilities and/or limited English proficiency to each public school two weeks before the scheduled assessment date for state NAEP.

NCS sent assessment materials to each school two weeks before the scheduled assessment date for state NAEP.

February 2 – 27, 1998

State NAEP assessments were conducted and monitored, with makeup sessions held the week of March 2–6, 1998.

5.2.2 Supervisor Training

Training for assessment supervisors was multiphased and involved separate sessions conducted in August, September, and December 1997. In addition, a large state NAEP training session for quality control monitors was held in early January 1998. All training was conducted by the Westat project director, field director, and home office staff. Also in attendance were representatives from Educational Testing Service (ETS), NCS, and NCES.

The first training session was held September 24 – 27, 1997 for 40 field staff assigned to gaining cooperation phase of the project. After an introduction to the study, which included the background and history of NAEP, an overview of the 1998 assessments, and the 1997–1998 assessment schedule, the training continued with a thorough presentation of NAEP's activities for contacting schools and gaining their cooperation. This is a lengthy process of contacting states, districts, and schools regarding their participation in and scheduling for NAEP; several demonstration phone calls, role plays, and exercises were used to provide some practical experience during this part of the training. Other training topics included: supervisory responsibilities, setting the assessment schedule, recruiting and training exercise administrators, and administrative forms and procedures. The scheduling supervisors also received a full day of training on using the reporting system installed on the laptop computers assigned to each of them for the gaining cooperation and scheduling phase. The reporting system is Westat's computerized field system used throughout national NAEP to record and update the participation status of each school and the attendance at each assessment session.

The 75 NAEP supervisors who were responsible for national NAEP assessment activities were trained again, in a second session, held December 9–15, 1997. The training began with a review of the preliminary activities during the fall, including results of gaining cooperation with districts and schools, scheduling of assessments, and the status of exercise administrator (EA) recruitment. (The role of EAs who conduct the assessments is discussed in Section 5.2.4.) The main focus of the training was a thorough discussion of assessment activities: sampling procedures, inclusion of SD/LEP students, teacher surveys, providing testing accommodations, conducting the sessions, and administrative forms and procedures. Westat's classroom management videotape, which is a 40-minute presentation on student behavior/attitudes and suggested approaches to "handling" students at various grade levels, was also shown at this training session. Key portions of the December training were devoted to carefully presenting the procedures involved in each of the two special studies, and each of these studies required a full day of training. These special studies, High School Transcript and Classroom-Based Writing, were initiated during the sampling visit to each school and continued on the assessment day, with certain

follow-up activities performed after the assessments. A full day of training on Westat's computerized NAEP field reporting system was also offered at the December training session.

The national NAEP and state assessment field managers were present at the December session to support training activities and answer questions from supervisors (who work under the field managers) concerning districts and schools that fell into the samples for more than one component of the assessment. Each supervisor also met with the person who completed the scheduling in their area, as a first step in preparing for the new supervisors' contacts with each school (and district, if needed).

The state NAEP supervisors attended a training session held November 5–8, 1997. This training session focused on the state supervisors' immediate tasks—selecting the student samples and hiring quality control monitors. Supervisors were given the training script and materials for the assessment administrators' training sessions they would conduct in January so they could become familiar with these materials.

Approximately 400 quality control monitors were trained for state NAEP in a session held in early January 1998. The first day of the training session was devoted to a presentation of the assessment administrators' training program by the state supervisors, which not only gave the monitors an understanding of what assessment administrators were expected to do, but gave state supervisors an opportunity to practice presenting the training program. The remaining days of the training session were spent reviewing the quality control monitor observation form and the role and responsibilities of the quality control monitors.

5.2.3 Contacting Districts and Nonpublic Schools

Once the supervisors were trained in September 1997, they began working on obtaining cooperation for national NAEP. In the states both sampled for national NAEP and participating in the state assessment, the national NAEP supervisor first spoke with the state NAEP field manager to determine what contacts, if any, had already been made with districts about NAEP. The approach the supervisors took when calling superintendents depended on whether the district had been notified about national NAEP by the state coordinator and whether the district also had schools selected for the state assessment. For districts that had been contacted by the state coordinator, the supervisor began by referring to that contact. Gaining specific cooperation in "state NAEP" schools was the responsibility of the state coordinators, while the Westat supervisors gained cooperation from all other schools, that is, the national NAEP schools and the nonpublic schools in state NAEP.

In previous national assessments, the supervisors offered and usually held "introductory meetings" with representatives from the superintendents' offices and the selected schools, typically the superintendent and the principals. These served as both an introduction to NAEP and a presentation on what would be asked of the school. The meetings were also used to establish a schedule for the sampling visits and the assessments in the schools.

Over the years, however, these meetings have become somewhat redundant, since many districts have fallen into the national sample more than one time. It has also become more and more difficult to schedule these meetings, as district and school officials find it harder to allot time away from their offices. Thus, during the fall preparations for both the 1996 and 1998 NAEP studies, the material was almost always presented to the superintendents and principals during telephone calls rather than in formal meetings. Generally, an in-person meeting was held only if specifically requested by the district or school officials, or if the supervisor felt that such a meeting would provide a better chance for convincing a district to participate.

As the supervisors contacted superintendents, principals, and nonpublic-school officials to introduce NAEP and determine the schools' cooperation status, they completed two forms and entered the school status in the receipt control system installed on their laptop computers. The results of contact form was completed to document the discussion the supervisor had with each administrator concerning the district's willingness to participate and any special circumstances regarding the schools' cooperation or assessments.

The supervisor also completed portions of a school control form. This form was preprinted with the number and types of national assessment sessions assigned to the school, so that this information could then be shared with district and school officials. Information gathered during the phone call, including the name of the person designated to be the school coordinator, the number of students in the designated grade, tentative dates for the sampling visit and assessment, and other information that could have some bearing on the assessment, was recorded on the form. This information was used to update records in the home office. In December, the forms were provided to the supervisors who would be conducting the assessments.

A small number of in-person introductory meetings were held. The New York City and Los Angeles City school districts have previously used these meetings to present information about the national NAEP assessments to the officials of all the selected schools and to encourage their participation, and wished to continue that practice for the current assessment. A small number of other school districts also requested such a meeting, involving representatives from their selected schools so that they would have a full understanding of what the assessments entailed.

During the telephone presentation or the introductory meeting, the supervisor discussed arrangements for the national assessments with representatives from each school. Within the weeks scheduled for the PSU, the supervisor had the flexibility to set each school's assessment date in coordination with school staff. The staff sometimes expressed preferences for a particular day or dates or had particular times when the assessment could not be scheduled. Their preferences or restrictions depended on the events that had already been scheduled on their school calendar. Using this information from the schools, the supervisors set up the assessment schedule for each PSU.

The supervisor usually learned during the introductory contact whether a school required some form of parental notification or permission. Three versions of standard NAEP letters were offered for the school's use, and each letter could be produced for selected students only or for all eligible students. The first version informs parents about the assessment. The second assumes parental consent unless parents send the form back stating that they do not want their child to participate in the assessment. The third version requires that parents sign and return the form before students can be assessed. All versions of the letter were available to the schools, although when the issue of parental permission came up in discussion, supervisors offered the least restrictive version that met the requirements of the school or district. In addition, Spanish language versions of the parent information letter were made available to the schools. Schools could also send out their own letters and notices if they preferred not to use those offered through NAEP. Information on whether the school required parent letters and the type of letter used was recorded on the school control form.

5.2.4 Recruiting, Hiring, and Training Exercise Administrators

During the fall, while the supervisors were contacting schools and scheduling assessments, their other major responsibility was to recruit and hire exercise administrators, who would administer the assessment sessions for national NAEP (for state NAEP, the school or district provides the assessment staff, known as assessment administrators). Exercise administrators for national NAEP were recruited from many sources. Each supervisor was given a PSU-by-PSU computerized list of exercise

administrators and other field staff who had worked previously on education studies for Westat. People who had served as exercise administrators before, with good evaluations from their previous supervisors, were usually the first considered for hiring. Subsequently, during contacts with the schools, the supervisors asked the school principals and other staff to recommend potential exercise administrators. These referrals were frequently retired teachers or substitutes. Finally, where necessary, ads were placed in local newspapers and the employment service was notified.

Supervisors were told that, in general, four to five exercise administrators should be hired for each PSU, although a variety of factors might influence the actual number. The number of schools in a PSU, the size of the student sample in each school, distances to be traveled, the geography of the area, and weather conditions during the assessment period were all factors taken into consideration by supervisors in developing their plan for hiring exercise administrators.

A few supervisors, whose NAEP assignments contained contiguous PSUs, hired the same exercise administrators to work in all their PSUs. Other supervisors, whose assignments comprised PSUs that were not geographically connected, tended to hire teams of exercise administrators for each PSU. Supervisors were encouraged to hire locally and to hire individuals with teaching experience and the ability to handle classroom situations.

The scheduling supervisors, all of whom were experienced NAEP supervisors, had complete responsibility for recruiting, hiring, and training all of the exercise administrators, including ones who would report to different assessment supervisors. The training was standardized so that all supervisors used a prepared script and exercises to train the exercise administrators.

Each exercise administrator received an exercise administrator manual, which covered the full range of their job responsibilities. After studying the manual, they attended a half-day training session. During the training, the supervisor reviewed all aspects of the exercise administrators' job, including preparing materials, booklets, and administration schedules for assessments; the actual conduct of the session; post-assessment collection of materials; coding booklet covers; recordkeeping; and administrative matters. In January 1998, each exercise administrator attended a shorter, refresher training session, conducted by the assessment supervisor, to gain further experience with the specific procedures and materials to be used in the assessment sessions.

For state NAEP, assessment administrators (AAs), rather than exercise administrators, conducted the NAEP sessions in each school. These persons were appointed by the school (or the district), usually from school staff, at the request of the state coordinator who gained cooperation and established the assessment arrangements for state NAEP schools. All of these arrangements were made during October–December 1997. Manuals on conducting the assessment were shipped to AAs by the state coordinators. Then, in January 1998, each AA attended a half-day assessment administrator training conducted by Westat supervisors for state NAEP. Many of the assessment procedures addressed in these AA training sessions are thoroughly demonstrated in person via film and through exercises.

5.3 SELECTING THE STUDENT SAMPLES

5.3.1 Selecting the National NAEP Student Samples

After securing cooperation from the school, the first scheduled visit to each national NAEP school was made to select the sample of students to take part in the national assessments, and to conclude the arrangements for the actual testing. This visit was made in January by the supervisor responsible for the assessments in the school. Upon arriving at the school (rarely, sampling was done at the district office instead of in the school), the supervisor first reviewed the list of grade-eligible students and confirmed

verbally with the school coordinator that all eligible students were listed. If any eligible students were omitted, sampling could not proceed until the list was completed. Instructions for preparing the student list, which essentially should contain all students (even those not normally tested) enrolled in the grade to be assessed, are mailed to schools late in the fall term prior to the national assessments.

Using the session assignment form (SAF) produced by Westat for the national assessment, the supervisor selected the sample of students to be assessed. The SAF is specific to a given NAEP school and provides detailed written sampling instructions for the school; it specifically documents the number and type(s) of sessions to be administered, the anticipated number of students to be assessed, the expected number of students eligible for the assessment, and a series of line numbers designating the students to be sampled for each session type. Those eligible students on the school's master list whose line numbers were shown on the SAF were selected for the assessment. After making sure that all eligible students had been listed, the supervisor numbered the students on the master list. If the total number of eligible students was within the minimum and maximum limits indicated on the SAF, the supervisor could proceed to select the sample. If the number was outside the limits, the supervisor called Westat for additional sampling instructions. With either the original instructions or revised line numbers, the supervisor proceeded to select the sample of students. The SAFs provided step-by-step instructions for sampling, indicating not just the line number of each student to be selected, but the type of assessment session for which each student was selected.

Once students were assigned to national NAEP sessions, the supervisor and exercise administrators filled out an administration schedule for each session. The administration schedule is the primary control document for the assessment. It is used to list each sampled student and is the only link between booklets and students. The sample was designed so that about 30 students were assigned to each national NAEP session. The supervisor discussed the final schedule of the sessions with the school coordinator and the date, time, and location of each session were filled in on the administration schedules. Because student names were recorded on the administration schedules, those forms remained in the schools after the sample was drawn.

The supervisor then asked the school coordinator to identify any students in the sample with an Individualized Education Program (IEP) (for reasons other than being gifted and talented) or who were designated as LEP. Any student with either (or both) of these designations was to be indicated on the administration schedules. The school was asked to complete an SD/LEP student questionnaire for each student with this designation. This was to be completed by a teacher, counselor or other school official who knew the designated student well.

The school coordinator was also asked to determine whether any of these students should be excluded from national sessions based on the criteria for assessing SD/LEP students (the use of the criteria for each NAEP session type are discussed more specifically in Section 5.1.1.2). If the school coordinator could not identify the excluded students while the supervisor was at the school, the instructions were left with the coordinator along with blank copies of the SD/LEP student questionnaire. In those cases, the coordinator consulted with other school officials and informed the supervisor as to who was to be excluded when the coordinator returned for the national assessment.

For the 1998 assessment, the sampling process generated, in total, 149,880 students to be assessed in those schools cooperating in national NAEP. These counts include the SD/LEP students whom the schools determined should participate in the assessments. Accommodations were provided for an estimated 3,270 students. The most frequently provided accommodations were small-group, extended-time (untimed testing), and one-one-one testing. Detailed information on SD/LEP results and on the specific numbers of students actually assessed are provided earlier in Chapter 3 of this report, beginning with Table 3-8 and continuing in subsequent tables.

At the end of the sampling visit, if requested by the school, the supervisor or exercise administrators made lists of the sampled students for the teachers and/or completed appointment cards notifying students about their assessment schedule. Teacher notification letters were also prepared in some schools, which explained the assessment and listed the students who had been selected.

5.3.2 Selecting the Special Studies Samples

Two special studies, requiring added steps in the sampling process, were included in the national assessment for 1998. One of these special studies involved some of the students in writing assessments. The other involved collecting high school transcripts for grade 12 students. In the case of both studies, no student names or other identifiers were taken out of the schools.

The classroom-based writing study involved the random selection during the national NAEP sampling visit of one English/language arts classroom from each fourth- and eighth-grade school in which a writing assessment was to be conducted. At the same time, the students in that classroom were listed on a writing study linkage form so that the classroom students who also took the national writing assessment could be identified. The classroom's English/language arts teacher was asked to work with the students and have them select two examples of their best classroom writing. The students were asked to answer a few questions about each selection. The teachers completed an interview with the supervisor who collected the writing materials after the assessment. A full report on this study is due to be published in the year 2001.

The High School Transcript Study (HSTS) involved a subsample of most of the NAEP public high schools and one-third of the private high schools selected for the original 1998 national NAEP sample. This subsample comprised approximately 350 schools. Sampled schools were included regardless of whether they participated in national NAEP in order to minimize nonresponse bias. The HSTS student sample included all eligible twelfth-grade students who were sampled for the 1998 national assessment. This included students who were either excluded or absent, though not those who had withdrawn or were ineligible. Approximately 23,000 student transcripts were collected in this sample. Seven steps of the HSTS process were completed by Westat field supervisors at the time of the NAEP sampling visit, and these seven steps are as follows:

- Discuss the HSTS with the school coordinator prior to sampling visit.
- Complete the school information form concerning the organization of course offerings and course credits at this school, in an interview with school coordinator.
- Obtain and review course catalogs.
- Complete the course catalog check sheet.
- Obtain and review three examples of student transcripts.
- Mask all identifiers on the sample transcripts.
- Identify and mark the sampled students' files.

The actual collecting of the transcripts for the sampled twelfth-grade students was performed after the end of the 1997–1998 school year. The HSTS is conducted periodically to provide educational policy makers with information regarding course offerings and course-taking patterns, including links to the NAEP assessment results, in the nation's secondary schools. The 1998 results will be provided in detail at a later date in a separate HSTS report prepared by Westat.

5.3.3 Selecting the State NAEP Student Samples

Following their November training, the state NAEP supervisors' first task was to complete the selection of the sample of students who were to be assessed in each school. All participating schools were asked to send a list of their grade-eligible students to the state coordinator by November 14. Sample-selection activities were conducted in the state coordinator's office unless the state coordinator preferred that the lists be taken to another location.

Using a sampling package on their laptop computers, the supervisors generally selected a sample of 30 students per session type per school, with three exceptions: in schools with fewer than 30 students in the grade to be assessed, all of the students were selected; in schools in which more than one session was scheduled, 60 students (or some multiple of 30 students) were selected; and in schools with no more than 33 students in the grade, all students were selected for the assessment.

After the sample was selected, the supervisor completed an administration schedule for each session, listing the students to be assessed. The administration schedules for each school were put into an envelope and given to the state coordinator to send to the school two weeks before the scheduled assessment date. Included in the envelope were instructions for sampling students who had enrolled at the schools since the creation of the original list.

5.4 CONDUCTING THE ASSESSMENT SESSIONS

5.4.1 Conducting the National Assessments

The primary responsibility for conducting national NAEP assessment sessions was given to the exercise administrators. Supervisors were required to observe the first session each exercise administrator conducted to ensure that they followed the procedures properly. Supervisors were also required to be present in all schools with more than one small session to be conducted. The supervisor plays an important role as the liaison between the national assessment and school staff, ensuring that the assessments go smoothly.

To ensure that sessions were administered in a uniform way, the exercise administrator was provided with scripts for each session type. The scripts were read verbatim, and began with a brief introduction to the study. The exercise administrator then distributed the booklets, being careful to match the student with the preassigned booklet.

After the booklets were distributed, some additional, scripted directions were read. Students were asked to write in the NAEP school ID (except in grade 4, where NAEP staff entered the ID on the cover of the booklet) and were given some general directions for completing the assessment. For fourth-grade students, all of the background questions were read aloud by the exercise administrator; at the upper grades, the first question, which asks the students' race/ethnicity, was read by the exercise administrator, and the students read the rest to themselves. After the background questions were completed, the students were told that any further questions they might have could not be answered by the exercise administrator, and that they were to begin the first cognitive section of the assessment. This process (along with the script) was modified somewhat for writing/civics sessions where the background questions were at the end of the assessment booklet, and none of the items was read aloud at grades 8 or 12.

During the sessions, the exercise administrators walked around the room, monitoring the students to make sure they were working in the correct section of their booklet and to discourage them from looking at a neighbor's or excluded booklet.

At the end of each assessment session, booklets were collected and students dismissed according to the school's policy. The exercise administrator was then responsible for completing the information at the top of the administration schedule, totaling the number of participating students, and coding the covers of all booklets, including those booklets assigned to absent students.

5.4.2 Conducting the State Assessments

During the months of November and December 1997, the state supervisors also recruited and hired quality control monitors to work in their jurisdictions. It was the quality control monitor's job to observe the sessions designated to be monitored, to complete an observation form on each session, and to intervene when the correct procedures were not followed. Because earlier results indicated little difference in performance between monitored and unmonitored schools, and in an effort to reduce costs, the percentage of public schools to be monitored was maintained at 25 percent (i.e., the reduced monitoring rate initiated in 1994). The monitoring rate for nonpublic schools was also maintained at 25 percent (and reduced from the 50% rate used in 1994, which was the first year that nonpublic schools were assessed by NAEP). As has been customary in the past, monitoring was conducted at 50 percent for jurisdictions that were new to the state assessment in 1998. The schools to be monitored were known only to contractor staff; it was not indicated on any of the listings provided to state staff.

Almost immediately following the quality control monitor training, supervisors began conducting training for assessment administrators. Each quality control monitor attended at least two training sessions, to assist the state supervisor and to become thoroughly familiar with the assessment administrator's responsibilities. To ensure uniformity in the training sessions, Westat developed a highly structured three-day training program involving a script for trainers, a videotape, and a training example to be completed by the trainees. The training package, developed for previous state assessments, was revised to reflect the subjects and grades assessed in 1998. The supervisors were instructed to read the script verbatim as they proceeded through the training, ensuring that each trainee received the same information. The script was supplemented by the use of overhead transparencies, displaying the various forms that were to be used and enabling the trainer to demonstrate how they were to be filled out.

Two weeks prior to the scheduled assessment date, the state NAEP assessment administrator received the administration schedule and assessment questionnaires and materials. Five days before the assessment, the quality control monitor made a call to the administrator and recorded the results of the call on the quality control form for monitored schools, because the assessment administrators were not supposed to know in advance which sessions were designated to be monitored. The preassessment call was conducted in exactly the same way regardless of whether the school was to be monitored or not. For example, directions to the school were obtained even if the school was in the unmonitored sample. Most of the questions asked in the preassessment call were designed to gauge whether the assessment administrator had received all materials needed and had completed the preparations for the assessment.

If the sessions in a school were designated to be monitored, the quality control monitor was to arrive at the school one hour before the scheduled beginning of the assessment to observe preparations for the assessment. To ensure the confidentiality of the assessment items, the booklets were packaged in shrink-wrapped bundles and were not to be opened until the quality control monitor arrived or 45 minutes before the session began, whichever occurred first.

In addition to observing the opening of the bundles, the quality control monitor used the quality control form to check that the following had been done correctly: sampling newly enrolled students,

reading the script, distributing and collecting assessment materials, timing the booklet sections, answering questions from students, and preparing assessment materials for shipment. After the assessment was over, the quality control monitor obtained the assessment administrator's opinions of how the session went and how well the materials and forms worked.

If four or more students were absent from the session, a makeup session was to be held. If the original session had been monitored, the makeup session was also monitored. This required coordination of scheduling between the quality control monitor and assessment administrator.

5.4.3 Participation of Department of Defense Education Activity Schools in State NAEP

The schools run by the Department of Defense at military bases and other installations around the world participated in the NAEP state assessment for the third time in 1998. The participation of the selected schools was mandated by the Department of Defense Education Activity (DoDEA) schools. To accommodate the geographic diversity of DoDEA schools, some minor adaptations were made in the preparatory activities used for the other jurisdictions.

For 1998, as in 1996, the data collection in DoDEA schools was expanded from the 1994 model so that both the DoDEA's Department of Defense Elementary and Secondary Schools (DDESS), which includes domestic schools, and the DoDEA's Department of Defense Dependents Schools (DoDDS), which includes overseas schools, were surveyed. In 1994, only the schools at overseas installations were sampled as part of the state assessment.

Many of the quality control monitors hired for the DoDEA schools were based overseas, and many had previous experience working within the DoDEA system. They were referred to Westat by DoDEA. All quality control monitors for the DoDEA schools attended the quality control training in Los Angeles and several assessment administrator training sessions in the geographic areas in which they worked.

The samples of students to be assessed in the DoDEA schools were selected in the Westat home office, using standard NAEP procedures, from lists of students produced in the DoDEA offices in northern Virginia. Due to privacy concerns, only student ID numbers and not student names appeared on the DoDEA lists. Thus, after sampling, the administration schedules contained only the ID numbers, and the assessment administrators consulted school records and added the names of the students to the administration schedules prior to the assessments.

Two field supervisors were hired specifically to conduct assessment administrator trainings and monitor quality control monitors in the DoDEA/DoDDS schools. The DoDEA liaison in northern Virginia, who essentially functioned as the state coordinator, arranged the assessment administrator training sessions, all of which were held in schools or other facilities on the bases. In many cases, the quality control monitors were required to obtain special clearances through DoDEA to visit the bases for training and the assessments. The assessments in DoDEA schools were conducted using the same procedures as in all state assessment schools.

5.5 RESULTS OF THE NATIONAL NAEP ASSESSMENT

5.5.1 School and Student Participation

The unweighted school response rate for the national assessments in 1998 was 86 percent overall. This rate reflects the final sample of cooperating schools including 731 schools at grade 4; 753 schools at grade 8; and 599 schools at grade 12. Table 3-8 in Chapter 3 provides detailed counts and response rates.

The school response rates increased for 1998, which reverses the small declines in national assessment school response rates that occurred between 1990 and 1996. The gains were most likely due to persistent efforts to convert schools and districts that indicated that they were not interested in participating in the assessments. Both Westat field managers and ETS staff were employed in these conversion efforts.

Although school response rates for 1998 reached their highest levels since 1990, the most frequently stated reason for school and district refusals, historically, has been the increase in testing throughout the jurisdictions and the resulting difficulty in finding time in the school schedule to conduct the NAEP assessments. With so many states now mandating their own testing, school schedules are becoming tighter, and administrators are finding it increasingly difficult to accommodate outside testing. Despite the increased visibility and publicity surrounding NAEP, schools are reluctantly finding it necessary to decline participation as a result of the increasing demands on their students' time.

Of the 160,480 students sampled for the 1998 assessment, roughly 5 percent overall were excluded by schools. Altogether, 133,489 students were assessed across all three grades: 36,104 students were assessed at fourth grade, 48,797 were assessed at eighth grade, and 48,588 students were assessed at twelfth grade. The final student participation rate was 89 percent and this reflects students who participated in the NAEP session, based on "students to be assessed", that is, after eliminating any students withdrawn from the school, not eligible, or excluded by the school.

The student response rate at which supervisors were required to conduct a makeup session was 90 percent (lower rates were used prior to 1996); that is, any session (or group of sessions within the same subject area) at which fewer than 90 percent of the eligible students were assessed would require a makeup session. For 1998 NAEP sessions, about 23,200 of the roughly 150,000 students to be assessed were absent from the original sessions. Almost 7,000 of the absent students were assessed in makeup sessions, which represents about 30 percent of those absent from the original sessions. The makeup assessments added an estimated 4.5 percentage points to the overall student response rate for all grades combined, and it is further estimated that the makeups were conducted in 25 to 30 percent of the schools, with some variation according to the grade level assessed.

5.5.2 Assessment Questionnaires

Westat provided each school with a school questionnaire a few weeks before the assessment was scheduled to be conducted (i.e., at the time of sampling). At the same time, supervisors prepared an SD/LEP student questionnaire for each sampled student with either an IEP or an LEP designation, with the request that it be completed by someone at the school knowledgeable about that student.

For fourth grade and eighth grade, selected teachers in the subject areas of language arts and civic education were asked to fill out teacher questionnaires. The teachers asked to participate were the reading, writing, or civics teachers of those students selected for the assessment so that the teacher data could be linked to student performance data. The teacher questionnaire for grade 4 was combined into

one form, since it is recognized that at this grade level the same teacher would probably teach all of the subjects. For grade 8, there were two distinct questionnaires, one for language arts teachers and the other for civics teachers. At grade 12, teacher questionnaires were not used in 1998 NAEP.

The NAEP supervisor requested that the teacher questionnaires be distributed as quickly as possible after the sampling so that they could be returned by the day of the assessment. Additional introductory materials were included with the teacher questionnaires, in response to questions that teachers have had in the past about the importance of completing the questionnaires and about NAEP in general. Teachers received a letter explaining the purpose of the teacher questionnaire, along with background materials about NAEP.

If the teacher addressed questionnaires were not complete at the time of the assessment, the supervisor left a postage-paid envelope to NCS to be used to return the questionnaires. Table 5-2 shows the number of questionnaires distributed and the number completed.

Table 5-2
*Background Questionnaires Received for Schools, Teachers,
and SD/LEP Students in the 1998 National Assessment**

	Teacher Questionnaires				SD/LEP Student Questionnaire
	School Questionnaire	Language Arts/Civics (Grade 4 only)	Language Arts	Civics	
Grade 4					
Number Expected	731	2,145	—	—	7,066
Number Received	700	2,081	—	—	6,830
Percent Received	96%	97%	—	—	97%
Grade 8					
Number Expected	753	—	2,303	1,594	7,942
Number Received	722	—	2,170	1,489	7,575
Percent Received	96%	—	94%	93%	95%
Grade 12					
Number Expected	599	—	—	—	6,588
Number Received	570	—	—	—	6,214
Percent Received	95%	—	—	—	94%

* Every cooperating school was given a school questionnaire, but some schools failed to complete their questionnaires, so that the number of completed questionnaires is smaller than the number of participating schools.

5.6 RESULTS OF THE STATE NAEP ASSESSMENT

5.6.1 School and Student Participation

Table 5-3 shows the results of the state coordinators' efforts to gain the cooperation of the schools selected for state NAEP.

Overall, for the 1998 state assessment in reading, 4,594 public schools and 570 nonpublic schools for grade 4 participated. For eighth grade, 3,805 public schools and 453 nonpublic schools participated in reading, and 3,688 public and 450 nonpublic participated in writing assessments.

Participation results for students in the 1998 state assessments are given in Table 5-4. Nearly 139,000 fourth-grade students and over 237,000 eighth-grade students were sampled. As can be seen from the table, the original sample, which was selected by the NAEP state supervisors, comprised approximately 135,000 (or 97%) of the total number of students sampled for grade 4, and approximately 231,500 (or 98%) of the total number of students sampled for grade 8. The original sample size was increased somewhat after the supplemental samples had been drawn (from students newly enrolled since the creation of the original list of students).

When queried, the quality control monitors felt most positive about the attitudes of the assessment administrators and somewhat less positive about the attitudes of other school staff and the students toward the assessment. The QC monitors' evaluations, impressions, and observations are recorded in the QC monitoring form provided to them for each school.

Quality control monitors concluded the summary section of their QC monitoring form by assigning a final rating of the assessment administrator's performance. With this rating, the quality control monitor reconsidered the session from the vantage point of how well it would have gone without the quality control monitor's presence. Eighty-four percent of the assessment administrators in monitored sessions were self-reliant or needed to consult the quality control monitors for only one or two minor items. Between four and five percent cited serious difficulty conducting the session (that is, relied on the quality control monitor to initiate procedures or conduct the session).

Table 5-3
*School Participation, 1998 State Assessment**

	Grade 4 Reading		Grade 8 Reading		Grade 8 Writing	
	Public	Nonpublic	Public	Nonpublic	Public	Nonpublic
Schools in original sample	4,594	570	3,805	453	3,688	450
Schools not eligible (closed or no sampled grade)	73	68	85	71	93	65
Eligible schools in original sample	4,521	502	3,720	382	3,595	385
Noncooperating [†]	440	131	397	90	362	107
Cooperating	4,081	371	3,323	292	3,233	278
Participating substitutes for noncooperating schools	125	27	84	8	86	11
Total of schools participating (after substitution)	4,206	398	3,407	300	3,319	289

* Corresponding data for national NAEP schools are provided in Chapter 3 of this report.

[†] e.g., school, district, or state refusal

Table 5-4
*Student Participation, 1998 State Assessment**

	GRADE 4 READING		GRADE 8 READING		GRADE 8 WRITING	
	Public	Nonpublic	Public	Nonpublic	Public	Nonpublic
Number Sampled	130,230	8,621	113,789	5,922	111,535	5,939
Original Sample	126,414	8,551	110,995	5,880	108,728	5,897
Supplemental Sample	3,816	70	2,794	42	2,807	42
Percent Increase in Original Sample	3.0%	0.8%	2.5%	0.7%	2.6%	0.7%
Number of Originally Sampled Students Withdrawn	5,628	88	5,357	57	5,347	63
Percent of Originally Sampled Students Withdrawn	4.4%	1.0%	4.8%	1.0%	4.9%	1.1%
Number of Students Excluded[†]	9,186	64	6,068	43	4,872	27
Number of Sampled Students Identified as SD	15,040	210	12,750	157	12,342	159
Percent of Sampled Students Identified as SD	11.5%	2.4%	11.2%	2.7%	11.1%	2.7%
Number of Sampled Students Excluded as SD	7,181	54	5,039	27	3,898	13
Percent of Sampled Students Excluded as SD	5.5%	0.6%	4.4%	0.5%	3.5%	0.2%
Number of Sampled Students Identified as LEP	5,514	53	3,338	64	3,329	63
Percent of Sampled Students Identified as LEP	4.2%	0.6%	2.9%	1.1%	3.0%	1.1%
Number of Sampled Students Excluded as LEP	2,406	13	1,260	19	1,187	15
Percent of Sampled Students Excluded as LEP	1.8%	0.2%	1.1%	0.3%	1.1%	0.3%
Number of Students To Be assessed	115,416	8,469	102,364	5,822	101,316	5,849
Number of Students Assessed	109,149	8,101	93,229	5,554	91,998	5,593
Original Sessions	108,145	8,020	91,614	5,511	90,410	5,557
Makeup Sessions	1,004	81	1,615	43	1,588	36
Student Participation Rates – Before Makeups	93.7%	94.7%	89.5%	94.7%	89.2%	95.0%
Student Participation Rates – After Makeups	94.6%	95.7%	91.1%	95.4%	90.8%	95.6%

* Corresponding data for national NAEP schools are provided in Chapter 3 of this report.

[†] To be excluded, a student had to be designated as SD or LEP and judged incapable of participating in the assessment. A student could be identified as both SD and LEP, resulting in this number being less than the sum of the students excluded as SD or LEP.

5.6.2 Results of the Observations

During the state NAEP assessment sessions, the quality control (QC) monitors observed whether the assessment environment was adequate or inadequate based on factors such as room size, seating arrangements, noise from hallways or adjacent rooms, and lighting. (If the room was unsuitable, however, the quality control monitors did not routinely ask the assessment administrator to make other arrangements.) Of the approximately 3,300 monitored assessment sessions, the quality control monitors felt that at least 96 percent of the sessions were held in suitable surroundings. This evaluation of the assessment environment is recorded in the QC monitoring form provided to them for each school observed, that is, the QC monitors' observations are recorded systematically in the pre-printed form during their observations of the sessions.

The Manual for Assessment Administrators encouraged assessment administrators to use an assistant during the assessment session, a suggestion that came from the earliest state assessment in 1990. To measure how frequently that advice was heeded, quality control monitors noted whether an assistant was used in the monitored sessions. The results indicate that assistants were used for about 52 percent of the public-school sessions. In nonpublic schools, however, an assistant was employed less often (19–29% of the time), which is possibly a reflection of fewer staff resources and generally smaller session sizes in nonpublic schools; the largest occurrence of assistants in public schools (29%) was at grade 4. Assessment administrators used assistants in varying capacities. The Manual for Assessment Administrators was very emphatic that only a NAEP-trained person could actually administer the assessment session. In most cases, assistants helped to supervise the session and to prepare, distribute, and collect assessment materials and booklets.

The assessment administrators were asked to estimate the total time that they spent on the preparations for and the conduct of the assessment, including their attendance at the training session. Estimates for 1998 were similar to those for previous years. In 1998, a majority of the assessment administrators with grade 4 sessions (73% in public schools and 90% in nonpublic schools) stated that they spent less than 20 hours on the assessment. For grade 8, however, only 40 percent of the assessment administrators in public schools, compared to 88 percent of those in nonpublic schools, spent fewer than 20 hours. The variation in time distribution for grade 8 public schools, particularly compared to public schools at grade 4, is most likely due to the fact that two session types (reading and writing) were usually conducted in each grade 8 school for state NAEP, but only one session type (reading) was held at grade 4. This does not appear to hold true for nonpublic schools, however, where the distribution of time spent is more similar for grades 4 and 8. It is evident that assessment administrators in nonpublic schools spent fewer hours overall on the assessment than did assessment administrators in public schools. Potential explanations might be the generally smaller sessions sizes in nonpublic schools (i.e., fewer materials to prepare and ship) and the possibility that some grade 8 schools may have used more than one assessment administrator, with each assessment administrator conducting one session (but compiling a larger total time for all sessions combined).

Quality control monitors observed that assessment booklet bundles were opened at the proper time in about 98 percent of sessions. In a few sessions, however, the bundle opening was not observed due to quality control monitor error (e.g., the quality control monitor was late, in the wrong place, or miscommunicated with the assessment administrator); presumably, some (or probably most) of these bundles were opened at the correct time. For a few other sessions, the quality control monitors were unable to observe the bundle opening that occurred early due to assessment administrator error (e.g., the assessment administrator misunderstood the procedures, felt more time was needed, had scheduling conflicts, or needed to prepare for multiple sessions starting at the same time).

After the conclusion of the state NAEP assessment sessions, Westat mailed state coordinators a short survey to obtain their reactions to the operations associated with the 1998 state assessment and any

suggestions they had for improving the program. Thirty-one of the forty-four state coordinators who were mailed the survey (or about 70 percent) responded by returning the survey or by providing their responses over the telephone. A detailed summary of the state coordinators' responses is contained in the *Report on Data Collection Activities for All States* (Westat, 1998), which was distributed to state coordinators in October 1998. Some of the responses from the state coordinators included:

- Eleven of the 31 reporting jurisdictions mandated participation in the 1998 state assessment.
- Only two jurisdictions reported that they helped gain the cooperation of nonpublic schools. One had success contacting parochial schools, but requested assistance from NAEP staff for recruiting other nonpublic schools. Most coordinators preferred that NAEP staff contact the nonpublic schools.
- All 31 jurisdictions responding (of the 44 jurisdictions sampled) used the computer system during the field period. Five jurisdictions used the system initially but not necessarily during the entire assessment period. The jurisdictions seemed to be comfortable with the computer system and were able to use it effectively. Typically, the reason for discontinuing use of the computer was that coordinators had completed their data-entry tasks and had turned responsibility back to the state supervisor who was coordinating requests for assessment date changes.
- Of the jurisdictions reporting on staff time devoted to NAEP, state coordinators spent an average of 28 days on NAEP activities, and in addition, other staff spent an average of 25 days.
- Reactions to the 1998 state assessment were quite positive. Most of the state coordinators who expressed an opinion said that the assessments went “very well” or “well”—with very few problems.

5.7 FIELD MANAGEMENT

Two field managers monitored the work of about 25 scheduling supervisors who worked during fall 1997 to gain cooperation of districts and schools for the national assessment. During the national assessment period, these staff were expanded to about 80 supervisors and 5 field managers. All supervisors reported directly to their field managers who, in turn, reported to Westat's field director. These contacts were made at least weekly.

An automated management system was developed and maintained in Westat's home office. The national NAEP scheduling supervisors working to contact schools during the fall used this system on their portable computers. The system contained a record for each sampled school. A disposition code structure was developed to indicate the status of each school's participation (e.g., school cooperating, decision pending, school refusal, district refusal, school closed, etc.). As a school's status was determined, the scheduling supervisors entered the status of the school into their computers, and this information was downloaded into the home office system on a weekly basis. Disposition reports were then generated from the receipt system once a week so that home office staff could review the progress of securing cooperation from the sampled schools.

These reports were an invaluable tool for the sampling statisticians as well as for the field director and field management staff. They provided the statisticians with the information needed to determine whether or not the response rates were high enough for the sample of schools to produce

representative results. Based on the information contained in these reports, the sampling statisticians selected substitute schools to replace some of the noncooperating schools.

After national NAEP assessments were completed, the system was used to enter data from the school worksheets (for national NAEP) on the number of students to be assessed, the number assessed, and the number absent for each school. Data on completed questionnaires received was provided by NCS. The system was also used to alter school assessment dates, particularly when bad weather required a change in schedule, and to monitor plans for and progress in conducting makeup sessions. Reports were generated weekly during the assessment period, allowing the project staff to monitor the progress of the assessments both in terms of checking that the schools were assessed on schedule as well as assuring that a high response rate was achieved. The sampling statisticians used these reports to monitor the sample yield by school, PSU, and age or grade level.

Progress of the national NAEP assessments was constantly monitored through telephone reports held between NAEP supervisors, field managers, and home office staff. During these phone conversations, the supervisors' schedules were reviewed and updated, and any problems that the supervisors were experiencing were discussed. Progress of the fieldwork was also monitored during quality control visits made to the field by Westat and ETS office staff.

The supervisors who traveled filled out a work schedule for a one- to two-week period, showing their whereabouts, so that they could be contacted if necessary. It also allowed field managers and project staff to review the supervisors' schedules and the distribution of work.

Chapter 6

PROCESSING ASSESSMENT MATERIALS¹

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6.1 INTRODUCTION

In the spring of 1998, the National Assessment of Educational Progress (NAEP) assessed students in reading, writing, and civics at grades 4, 8, and 12 at the national level. At the state level, reading was assessed at grades 4 and 8, and writing was assessed at grade 8 only. Civics was not assessed at the state level. National Computer Systems (NCS), under subcontract to Educational Testing Service (ETS), completed the following activities related to test-materials processing for both the national and state components of the 1998 assessment:

- Printing of test booklets and questionnaires
- Materials packaging and distribution
- Receipt control
- Data capture through image and optical mark recognition scanning
- Data editing and validation
- Performance scoring of constructed-response (open-ended) items
- Data file creation
- Inventory control and materials storage

NCS received and processed a total of 447,377 assessed student booklets and 113,676 questionnaires for the three grades and subjects assessed. A total of 4,272,139 readings of student constructed responses were conducted via image-based on-line scoring. This allowed for item-by-item scoring and on-line, real-time monitoring of both interrater reliabilities and the performance of each individual reader. Session and booklet information for the 1998 national and state assessments is given in Table 6-1. Table 6-2 provides information on questionnaires expected, received, and processed. Further detail is provided in NCS's *1998 NAEP Assessment Report of Processing and Professional Scoring Activities* (National Computer Systems, 1998).

6.2 PRINTING

For the 1998 assessments, 284 unique documents were designed. NCS printed more than 1,500,000 booklets and forms, totaling more than 60 million pages. This was a collaborative effort involving staff from ETS, Westat, and NCS. ETS created camera-ready blocks using NCS's DesignExpert™ software for the test booklets and questionnaires. Using ETS's booklet maps, which specified the order of blocks in each booklet, NCS assembled electronic components into complete

¹ Connie Smith was the NCS project manager for 1998 NAEP, Charles Brungardt was the NCS project director for 1998 NAEP scoring, and Timothy Robinson was the NCS senior processing coordinator for 1998 NAEP.

booklets. NCS then forwarded proofs to ETS, while conducting simultaneous quality control itself. Upon approval, final-form test booklets and questionnaires were produced and accounted for in the NCS inventory control system.

Table 6-1
*Number of Sessions and Student Booklets Processed
for the 1998 National and State Assessments*

Grade	Session Type	Number of Sessions	Assessed Booklets	Absent Booklets	Excluded Booklets
National					
4	Reading	470	8,280	330	924
	Writing	1,519	25,816	1,317	1,880
	Civics	116	2,088	98	180
	Total	2,105	36,184	1,745	2,984
8	Reading	623	11,970	937	977
	Writing	1,925	34,858	2,827	1,508
	Civics	114	2,055	161	96
	Total	2,662	48,833	3,925	2,581
12	Reading	694	13,417	3,393	729
	Writing	1,769	33,106	8,373	1,207
	Civics	114	2,193	500	100
	Total	2,577	48,716	12,266	2,100
State					
4	Reading	4,915	117,237	6,363	9,317
	Total	4,915	117,237	6,363	9,317
8	Reading	4,389	98,776	9,236	6,176
	Writing	4,375	97,603	9,338	97,603
	Total	8,764	196,479	18,574	103,799

Table 6-2
Questionnaire Totals for the 1998 NAEP Assessment

	Expected	Received	Percent
National			
Grade 4			
Language Arts/Civics Teacher Questionnaire	2,145	2,081	97.0%
School Questionnaire	731	700	95.8%
SD/LEP Questionnaire	7,066	7	96.7%
Grade 8			
Language Arts Teacher Questionnaire	2,303	2,170	94.2%
Civics Teacher Questionnaire	1,594	1,489	93.4%
School Questionnaire	753	722	95.9%
SD/LEP Questionnaire	7,942	7,575	95.4%
Grade 12			
School Questionnaire	599	570	95.2%
SD/LEP Questionnaire	6,588	6,214	94.3%
State			
Grade 4			
Language Arts Teacher Questionnaire	16,597	16,339	98.4%
School Questionnaire	4,593	4,550	99.1%
SD/LEP Questionnaire	18,711	18,310	97.8%
Grade 8			
Language Arts Teacher Questionnaire	14,854	14,370	96.7%
School Questionnaire	3,935	3,858	98.0%
SD/LEP Questionnaire	28,515	27,798	97.5%

6.3 PACKAGING AND DISTRIBUTION

The distribution effort for the 1998 NAEP assessment involved packaging and mailing documents and associated forms and materials to the Westat supervisors for the national assessment and to individual schools for the state assessment. The NCS materials distribution system (MDS) was utilized again in 1998. Files in the MDS system contained shipping addresses, scheduled assessment dates, and a listing of all materials available for use by a participant in a particular subject area. Changes to any of this information were made directly in the MDS file either manually or via file updates provided by Westat.

Bar code technology continued to be utilized in document control, as has been done since the 1990 NAEP assessment. NCS identified each document with a unique 10-digit identification number. This number consisted of the 3-digit booklet number or form type, a 6-digit sequential number, and a check digit. Each form was assigned a range of identification numbers. Bar codes reflecting this identification number were applied to the front covers of documents by NCS bar code processes and high-speed ink-jet printers.

Spiraling of the NAEP booklets was done according to the pattern specified by ETS (see Section 1.5) to capture the sample size needed for each subject per grade. One booklet type from each grade and subject was designated as an accommodation booklet. These booklets were grouped in bundles of three.

Using sampling files provided by Westat, NCS assigned bundles to sessions and customized the packing lists. File data was coupled with the file of bundle numbers and the corresponding booklet numbers. This file was then used to preprint all booklet identification numbers, school name, school number, and session type directly onto the scannable administration schedule. This increased the quality level of the booklet accountability system by enabling NCS to identify where any booklet should be at any time during the assessments. To assist Westat supervisors with sampling in the schools, NCS distributed the preprinted administration schedules and questionnaires for the national assessment in December 1997. Preprinted administration schedules for the state assessment were sent to the appropriate state supervisor for distribution during training of the assessment administrators in January and February 1998.

NCS was also responsible for packaging and distributing bulk and session materials to Westat supervisors for the national assessment. Bulk shipments included materials that could be used by supervisors from one session to another, such as ancillary items and additional booklets.

Distribution of materials for the national assessment was accomplished in two phases. In the first phase, bulk supplies of materials were distributed to each supervisor. The second phase was the distribution of session specific materials by supervisor region and primary sampling unit (PSU). Each session box of materials contained the assigned bundles of booklets and the appropriate ancillary items. For additional materials, Westat supervisors were instructed to contact NCS using the NAEP toll-free line or the NAEP e-mail address.

Session materials were sent to individual schools in the NAEP state assessment. Distribution of materials was accomplished in five waves of shipment dates. Except for wave "zero," session materials were sent to schools two weeks before their scheduled assessment date. All school materials were sent directly to an assessment administrator at a school or school district. Materials for Hawaii, Virgin Islands, and DoDEA/DoDDS (Department of Defense Education Activity's Department of Defense Dependents Schools) were distributed in wave "zero". These shipments required an alternate carrier to ensure timely delivery.

Initially, 6,933 individual sessions were shipped to 3,814 schools for the national assessment. For the state assessment, 13,586 sessions were mailed to 12,253 schools. Approximately 450 additional shipments of booklets and miscellaneous materials were also sent out for the national assessment and 3,000 for the state assessment.

To request additional materials for the 1998 NAEP assessment, Westat supervisors used either the NCS/NAEP toll-free telephone number or the NCS/NAEP e-mail address. After all the appropriate information had been entered, the system produced a packing list and mailing labels for NCS's packaging staff, who filled and sent the order.

State assessment administrators (AAs) were given two options also, a toll-free telephone number or a toll-free fax number. This year NCS created a materials request form and included it in the school shipment to be used either as a guide for ordering materials over the phone or as a fax order form. A form was created for each grade and great care was taken to group items by session type to simplify the process for the AAs.

NCS clerical staff also responded to calls or e-mail concerning shipment delivery dates, lost shipments, and general questions concerning the NAEP assessment.

6.4 PROCESSING

NCS staff created a set of predetermined rules and specifications that was to be followed by the processing departments within NCS. Project staff performed a variety of procedures on materials received from the assessment administrators before releasing these materials into the NCS/NAEP processing system. Control systems were used to monitor all NAEP materials returned from the field. The NAEP Process Control System (PCS) contained the status of sampled schools for all sessions and their scheduled assessment dates. As materials were returned, the PCS was updated to indicate receipt dates, to record counts of materials returned, and to document any problems discovered in the shipments. As documents were processed, the system was updated to reflect processed counts. NCS report programs were utilized to allow ETS, Westat, and NCS staff to monitor progress in the receipt control operations. An alerts process was utilized to record, monitor, and categorize all discrepant or problematic situations. Throughout the processing cycle, alert situations were identified based on the processing specifications.

NCS's Work Flow Management system (WFM) was used to track batches of student booklets through each processing step, allowing project staff to monitor the status of all work in progress. It was also used by NCS to analyze the current work load, by project, across all workstations. Through routine monitoring of this data, NCS's management staff was able to assign priorities to various components of the work and to monitor all phases of the data receipt and processing.

6.4.1 Document Receipt and Opening

Shipments were to be returned to NCS packaged in their original boxes. The bar-coded label applied during the distribution phase containing the NAEP school identification number was scanned into a personal computer (PC) file upon receipt. The PC file was then transferred to the mainframe, and the shipment receipt date was applied to the appropriate school within the PCS system. This provided the status of receipts regardless of any processing delays. Each receipt was reflected on the PCS status report provided to the NCS receiving department and supplied to Westat weekly via electronic file transfer and in hard-copy format. ETS also received a hard copy. The PCS file could be manually updated to reflect changes. The shipment was then forwarded to the opening area.

Opening personnel checked the shipment to verify that the contents of the box matched the school and session indicated on the label. Each shipment was checked for completeness and accuracy. Any shipment not received within three days of the scheduled assessment date was flagged in the PCS system and annotated on the PCS report. The administration status of these delayed shipments was checked, and in some cases a trace was initiated on the shipment.

NCS was required to open all shipments within 48 hours of their receipt and to key-enter preliminary processing information into the PCS system from the administration schedule. The preliminary information was written on the administration schedule by Westat assessment administrators and consisted of the following:

- School number
- Session number
- Original test date
- Total number of students to be assessed
- Total number of students assessed
- Completeness flag

This preliminary information, used to provide Westat with timely student response rates, was updated with actual data when materials passed error-free through processing. The shipment was checked by NCS opening staff to see if any part of the shipment was missing, held for makeup, not administered, or refused. The shipment was also checked to verify that all booklets whose numbers were preprinted or handwritten on the administration schedule were returned with the shipment and that all administration codes matched from booklet cover to the administration schedule.

For all makeup sessions and for any missing materials not returned, the documents were placed on holding carts until the other documents arrived. These sessions were flagged on the PCS system and Westat was informed of this information. If the materials were not being returned, processing continued and the appropriate administration code was applied to the administration schedule. All questionnaires received were matched against the roster of questionnaires, which was a checklist of all types of questionnaires used in the assessment.

6.4.2 Batching of Booklets

Once all student booklets listed on the administration schedule for a session were verified as being present, the entire session (both the administration schedule and booklets) was forwarded to the batching administration area. Booklet batches were created by grade level, subject area, and session type. Each batch was assigned a unique batch number. This number, created on the Image Capture Environment (ICE) system for all image-scannable documents, facilitated the internal tracking of the batches and allowed departmental resource planning. All other scannable documents—school questionnaires, teacher questionnaires, SD/LEP (students with disabilities/limited English proficient) questionnaires, and the roster—were batched by document type in the same manner.

6.4.3 Scanning of Documents

The 1998 NAEP assessment used four rosters—one for each grade and one supplemental SD/LEP roster—to account for all questionnaires. Rosters of questionnaires were used to record the distribution and return of SD/LEP questionnaires, teacher questionnaires, and school questionnaires. Batches of school questionnaires and rosters, which are image scannable documents, were created on the ICE system. Batches of teacher and SD/LEP questionnaires, image scannable for the first time in the 1998 NAEP cycle, were also created on the ICE system. Batches were then forwarded to scanning, where all information on the rosters or questionnaires was scanned into the system.

6.4.4 Data Transcription

The transcription of the student response data into machine-readable form was achieved through the use of the following two systems: data entry (image scanning, intelligent character recognition [ICR], and key entry), and data validation (edit). NCS used the same format as in prior NAEP assessments and field tests to set up the document definition files for the number of unique documents used in the 1998 assessment. To do the proper edits, a detailed document definition procedure was designed to allow NCS to define an item once and use it in many blocks and to define a block once and use it in many documents.

6.4.4.1 Data Entry

The data-entry process was the first point at which booklet-level data were directly available to the computer system. Depending on the NAEP document, one of three methods was used to transcribe NAEP data to a computerized form. The gridded data on scannable documents were collected using NCS optical-scanning equipment, which also captured images of the constructed-response (open-ended) items and ICR fields in a single pass.

Optical Mark Recognition (OMR) Scanning. The data values were captured from the booklet covers and administration schedules and were coded as numeric data. Unmarked fields were coded as blanks and editing staff were alerted to missing or uncoded critical data. Fields that had multiple marks were coded as asterisks (*). The data values for the item responses and scores were returned as numeric codes. The multiple-choice single-response format items were assigned codes depending on the position of the response alternative; that is, the first choice was assigned the code “1,” the second “2,” and so forth. The mark-all-that-apply items were given as many data fields as response alternatives; the marked choices were coded as “1,” while the unmarked choices were recorded as blanks.

Image Scanning. The images of constructed-response (open-ended) items were saved as a digitized computer file. The area of the page that needed to be saved was defined prior to scanning through the document definition process. The fields from unreadable pages were coded “X” as a flag for resolution staff to correct. Any image document or sheet unreadable by the image scanning system was taken to a flat-bed scanner to be scanned into the system. In addition to capturing the student responses, the bar code identification numbers used to maintain process control were decoded and transcribed to the NAEP computerized data file.

Intelligent Character Recognition. The intelligent character recognition (ICR) engine was again utilized to read various hand and machine printing on the front cover of the booklet and supervisor documents for the 1998 assessment. Some information from student documents, administration schedule, roster of questionnaires, and some questions in the school questionnaires, were read by the ICR engine and verified by an on-line key-entry operator. In all, the ICR engine read 1,994,416 characters for the 1998 assessment. Use of the ICR engine saved NAEP field staff a significant amount of time, since they did not have to grid rows and columns of data.

In all three cases, the data were edited, and suspect cases were resolved before further processing.

6.4.4.2 Data Validation

Each dataset produced by the scanning system contained data for a particular batch. These data had to be validated (or edited) for type and range of response. The data-entry and resolution system used was able to simultaneously process a variety of materials from all age groups, subject areas, control documents, and questionnaires as the materials were submitted to the system from scannable and nonscannable media.

The data records in the scan file were organized in the same order in which the paper materials were processed by the scanner. A record for each batch header preceded all data records for that batch. The document code field on each record distinguished the header record from the data records.

When a batch-header record was read, a preedit data record and an edit log entry was generated. As the program processed each record within a batch from the scan file, it wrote the edited and reformatted data records to the preedit file and recorded all errors on the edit log. The data fields on an edit log record identified each data problem by the batch sequence number, booklet serial number, section or block code, field name or item number, and data value. After each batch had been processed, the program generated a listing or on-line edit file of the data problems and resolution guidelines. An edit log listing was printed at the termination of the program for all nonimage documents. Images requiring editing were routed to on-line editing stations for those documents that were image scanned.

When the entire document was processed, the completed string of data was written to the data file. When all the documents in the batch were processed, the program generated an edit listing for nonimage and key-entered documents. Image-scanned items that required correction were displayed at an on-line editing terminal.

For rapid resolution, the edit criteria for each item in question appeared on the screen along with the suspect item. Corrections were made immediately. The system employed an edit/verify system that ultimately meant two different people viewed the same suspect data and operated on it separately. The verifier made sure the two responses (one from either the entry operator or the ICR engine) were the same before the system accepted that item as being correct. If the editor could not determine the appropriate response, he or she escalated the suspect situation to a supervisor. For errors or suspect information that could not be resolved by supervisory staff, a product-line queue was created, allowing supervisors in the processing area to escalate edits to project staff for resolution.

Once an entire batch was through the edit phase, it became eligible for the count-verification phase. The administration schedule data were examined systematically for booklet identification numbers that should have been processed (assessed administration codes). All documents under that administration schedule were then inspected to ensure that all of the booklets were included.

With the satisfactory conclusion of the count-verification phase, the edited batch file was uploaded to the mainframe, where it went through yet another edit process. A paper edit log was produced and, if errors remained, was forwarded to another editor. When this edit was satisfied, the PCS and WFM tracking systems were updated.

The teacher and SD/LEP questionnaires were edited on paper. Machine edits performed during data capture verified that each sheet of each document was present and that each field had an appropriate value.

Data editing took place after these checks. This consisted of a computerized edit review of each respondent's document and the clerical edits necessary to make corrections based on the computer edit. This data-editing step was repeated until all data were correct.

Suspect data that were investigated during the edit phase consisted of, but were not limited to, the following by document types:

Administration Schedule

- a) Verification that all assessed student booklets are present in a processed batch: If an administration code of 10-14, 20-24, or 71-79 was present on the administration schedule, the editor verified that a booklet was present. If the booklet was missing, the booklet was located and processed before the batch can continue to be processed.

- b) Verification that the booklet bar code number was valid: NAEP booklet bar code numbers for the 1998 assessment were 10-digits long and fell within a certain range of numbers by grade. If, on a hand-written administration schedule, the booklet bar code written was less than 10-digits or out of range for the grade being processed, NAEP project staff corrected the bar code number as appropriate to match the booklet being processed.
- c) Verification that the School number was valid: If the school number was blank or not on the PCS file, the school number was corrected by NAEP project staff.

Student Booklets

- a) Investigating suspect bar codes, duplicate bar codes, or invalid check-digits: If the bar code number was read incorrectly by the scanner, the bar code was corrected to match the bar code on the booklet in question.
- b) Investigating suspected absent students: If a booklet had an administration code indicating an assessed student, yet no multiple-choice responses were read by the scanning equipment, the editor manually checked the booklet for any multiple-choice responses. If a student had penciled in his or her multiple-choice responses too lightly for the scanners to read, the editor key entered the responses into the student data record. If no multiple-choice responses were present, but open-ended responses were, the booklet was sent through processing unchanged. If no multiple-choice or open-ended responses were present, the administration code was changed to indicate that there were no responses in the booklet, and the booklet was sent through processing with the updated administration code.
- c) Investigating responses within the valid range: An example of a range check would be verifying that the birth month of the respondent falls with the range of 01-12. If the birth month is not within the valid range and a correct birth month can be determined from either the administration schedule or booklet cover, the birth month is corrected. If a valid response cannot be determined, the birth month is blanked out. The same type of range check is done for the birth year when specific years are valid by grade.

A computerized edit list, produced after NAEP documents were scanned, and all the supporting documentation sent from the field were used to perform the first phase of the edit function. The hard-copy edit list contained all the vital statistics about the batch: number of students, school code, type of document, assessment code, suspect cases, and record serial numbers. Using the information, the data editor verified that the batch had been assembled correctly and that each school number was correct. During data entry, counts of processed documents were generated by type. These counts were compared against the information captured during scanning.

In the second phase of data editing, experienced editing staff used a predetermined set of specifications to review the field errors and record necessary corrections to the student data file. The computerized edit list used in phase one was used to perform this function. The editing staff reviewed the computer-generated edit log and the area of the source document that was noted as being suspect or as containing possible errors. The composition of the field was shown in the edit box. The editing staff checked this piece of information against the NAEP source document. At that point, one of the following took place:

- (a) *Correctable error*: If the error was correctable by the editing staff according to the editing specifications, the correction was noted on the edit log for later correction via key entry.
- (b) *Alert*: If an error was not correctable according to the specifications, an alert was issued to NAEP project staff for resolution. Once the correction information was obtained, the correction was noted on the edit log for key-entry correction.
- (c) *Noncorrectable error*: If a suspected error was found to be correct as stated and no alteration was possible according to the source document and specifications, no corrective action was taken. The programs were tailored to allow this information to be accepted into the data record.

The corrected edit log was then forwarded to the key-entry staff for processing. When all corrections were entered and verified for a batch, an extract program pulled the corrected records into a mainframe data set. At this point, the mainframe edit program was initiated. The edit criteria were again applied to all records. If there were further errors, a new edit listing was printed and the cycle was repeated.

When the edit process produced an error-free file, the booklet identification number was posted to the NAEP tracking file by age, assessment, and school. This permitted NCS staff to monitor the NAEP processing effort by accurately measuring the number of documents processed by form. The posting of booklet identification numbers also ensured that a booklet identification number was not processed more than once.

To provide another quality check on the image scanning and scoring system, NCS staff implemented a quality check process by creating a stamp with a valid score designated on it. Each unique document type scored via the image system had two quality assurance documents stamped with valid scores for the items present. The QA booklets were batched and processed together with student documents of the same type. During the process of scoring, valid score points could be changed or dropped due to revision in the scoring rubrics. NCS provided ETS with documentation as to what score points on these items were no longer valid. When an image quality assurance stamp was displayed to a reader that contained a score point that was no longer valid, the reader assigned the response a score point of OT (off-task).

NCS also produced various status reports. The Receipt Control Status Report was designed to track the receipt of material from the schools. It was sorted by school number and displayed the following information: participation status, scheduled administration date and the shipment receipt date. The comment field in this report showed any school for which a shipment had not been received within three days of the scheduled test date.

The Processing Status Report was divided into two sections. The first was sorted by school and grade within each assessment. The following preliminary data for each were entered from the administration schedule as the shipment was opened by the receiving department: school number, session code, test date, preliminary count date, preliminary to-be-assessed counts, preliminary total-assessed counts, and completeness flags. The actual to-be-assessed count, actual total-assessed count, actual withdrawn ineligible count, actual count date, actual number excluded, and actual absent count were entered programmatically following the completion of processing. The second section of the Processing Status Report sorted and totaled the various documents by form within each grade and assessment.

The PCS Exceptions Report listed all schools and sessions with discrepancies, that is, materials not returned within three days, school or session given a completeness flag. Once all discrepancies were resolved for a school, the school would be removed from the report.

NCS transmitted electronic files containing the above data to Westat weekly. Hard copy of the PCS Exception Report, Alerts, and Documents Processed Report were also sent to ETS and Westat weekly.

6.5 DATA TRANSMISSION BEFORE SCORING

Delivery of data to the scoring center was accomplished via T1 transmission lines that linked the mainframe computers and the NAEP servers at the document-scanning site in the NCS main facility with the scoring servers that were dedicated to distributing work to the professional readers at the scoring center. The actual task of scheduling items for downloading was accomplished using a code written by the Image Software Development team. This code enabled the person scheduling the download to choose a team of readers and select the scheduled items from a list of all items that the team would be scoring throughout the scoring project. This process was repeated for all teams of readers until all anticipated work was scheduled.

6.6 CLASSROOM-BASED WRITING STUDY

Approximately 200 schools participating in the national writing assessments also conducted the Classroom-Based Writing Study. This study involved collecting two examples of student writing from an intact classroom at the selected schools. Participating students were also asked to complete a brief questionnaire of the assignment for which the writing samples were written. Teachers of participating classes were interviewed and an audiotape of the interview was shipped to NCS for transcription. Details of this study will be published in a forthcoming NAEP report.

Chapter 7

PROFESSIONAL SCORING¹

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7.1 OVERVIEW

The 1998 NAEP assessment required the scoring of constructed responses in reading, writing, and civics at grades 4, 8, and 12 on the national level. At the state level, constructed responses were scored at grades 4 and 8 for reading and grade 8 for writing. All preparations were completed and scoring accomplished on a schedule that allowed faster reporting and delivery of data than in previous years. Also, to measure longitudinal trends in reading, the project required National Computer Systems (NCS) to replicate scoring from the 1994 NAEP reading assessment for most of the reading items and to demonstrate that scoring of this subject was statistically comparable across years.

To accomplish the task of scoring the constructed responses, NCS's Performance Assessment Scoring Center (PSC) employed more than 300 professional and 82 clerical scorers on a two-shift schedule. The professional scorer is required to have, at a minimum, a baccalaureate degree from a four-year college or university; an advanced degree, scoring experience, and/or teaching experience is preferred. The clerical scorers, who coded the pre-writing exercise, have at least a high school diploma. NCS worked with Educational Testing Service (ETS) to prepare training materials and carry out the training of the scoring teams. Table 7-1 lists the processing and scoring totals for each subject and grade.

Table 7-1
Processing and Scoring Totals for the 1998 NAEP Assessment

	Booklets Processed	Number of Constructed Responses*	Number of Discrete Response Items[†]	Number of Scorers and Team Leaders[‡]	Dates of Training and Scoring
Total	447,961	3,770,952	335	—	—
National & State Grade 4 Reading	125,517	1,535,479	46	160 / 16	3/23/98 – 4/24/98
National & State Grade 8 Reading	110,746	1,470,932	69	100 / 10	3/23/98 – 4/24/98
National Grade 12 Reading	13,431	195,444	76**	40 / 4	3/23/98 – 4/24/98
National Grade 4 Writing	19,937	49,347	20	30 / 3	4/28/98 – 7/1/98
National & State Grade 8 Writing	124,346	268,238	23	129 / 12	4/28/98 – 7/1/98
National Grade 12 Writing	25,433	55,695	23	30 / 3	4/28/98 – 7/1/98
National Grade 4 Civics	8,087	52,454	21	27 / 3	4/27/98 – 5/11/98
National Grade 8 Civics	10,337	72,450	28	27 / 3	4/27/98 – 5/11/98
National Grade 12 Civics	10,031	70,913	29	36 / 4	4/27/98 – 5/11/98

* This is the number of student responses to the constructed-response items. These scored responses include those that were rescored for reliability estimation.

[†] This is the number of discrete constructed-response items in assessment booklets.

[‡] Because readers scored items from all grades and all types of booklets, it is not possible to break the numbers down by how many scored each classification of items.

** This included 75 image and 1 paper.

¹ Connie R. Smith was the NCS project manager for 1998 NAEP, Charles Brungardt was the NCS project director for 1998 NAEP scoring, and Timothy Robinson was the NCS senior processing coordinator for 1998 NAEP.

Figures 7-1 and 7-2 provide flowcharts for image scoring (see Section 7.4) and paper scoring (see Section 7.5). Further detail is provided in NCS's *1998 NAEP Assessment Report of Processing and Professional Scoring Activities* (National Computer Systems, 1998).

Figure 7-1
Image Scoring Flow Chart

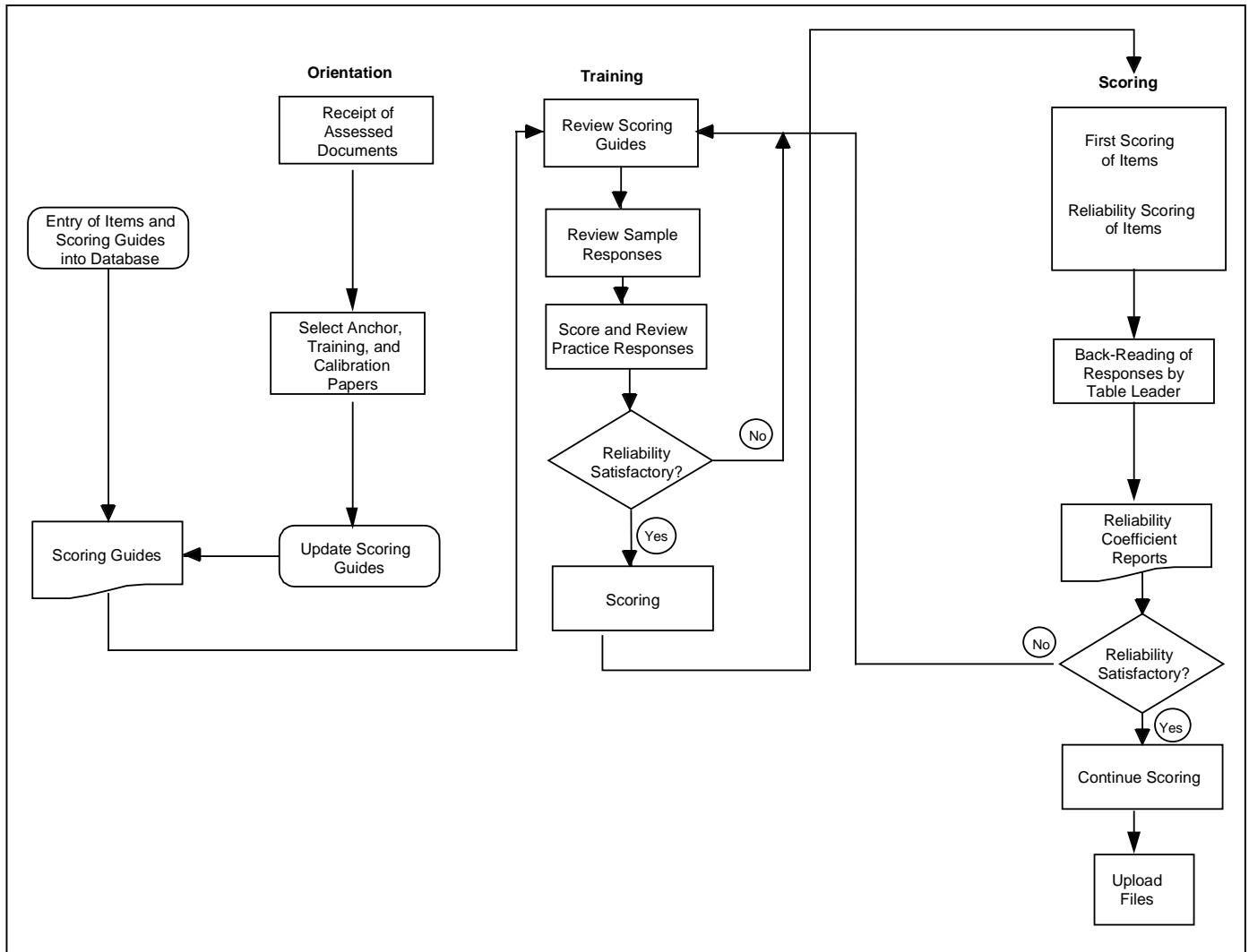
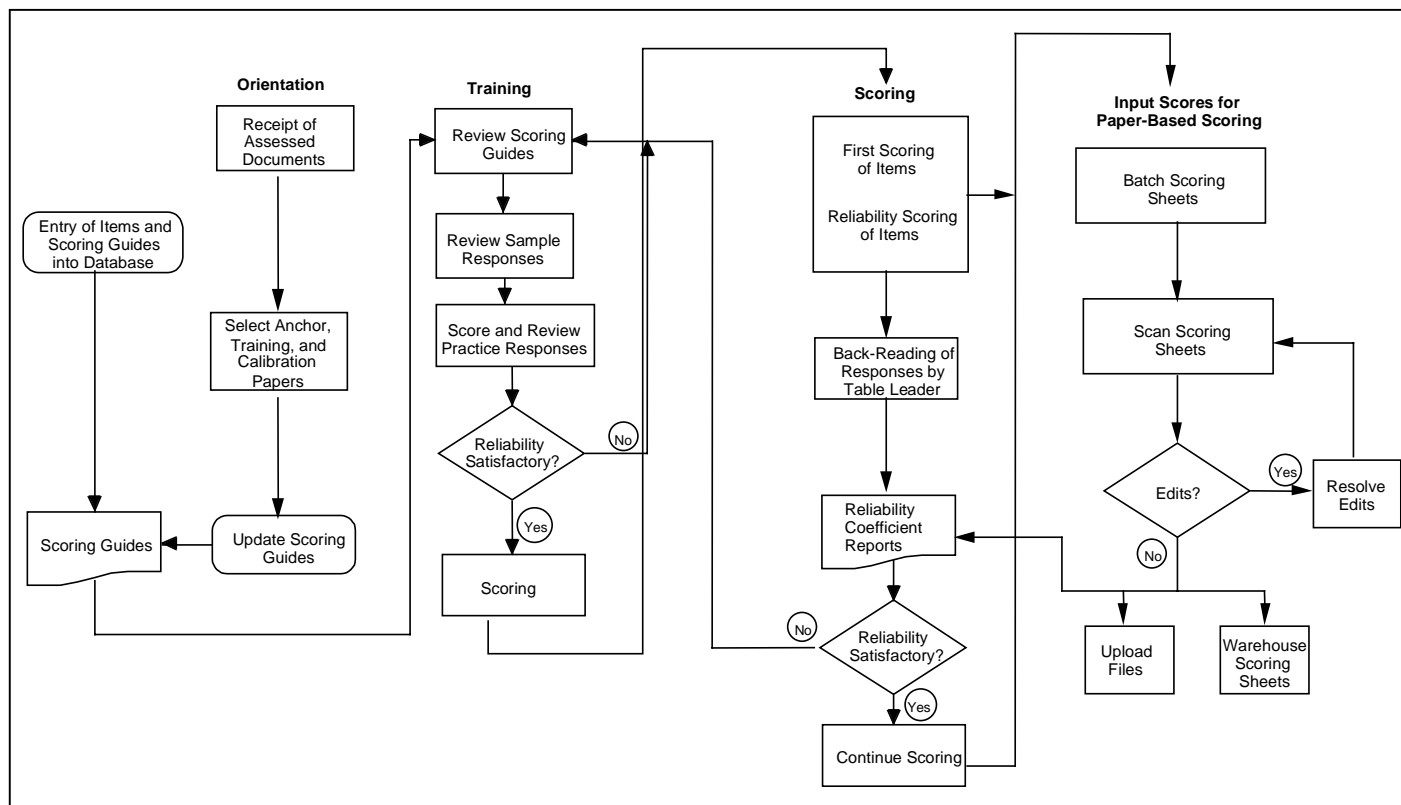


Figure 7-2
Paper Scoring Flow Chart



7.2 SELECTION OF TRAINING PAPERS

Clerical staff began the process of copying all responses for rangefinding and creation of anchor and training sets in November of 1997 by copying all the responses (approximately 400 per prompt) for the writing prompts that did not change wording or format between the field test and operational assessment. In January and February of 1998, the clerical staff copied more sample responses, including approximately 300 responses for each writing item that had undergone changes in wording or format, 200 responses for each writing item that remained the same since the field test, 200 responses for each new reading item, and 150 responses for each civics item. NCS clerical staff wrote the booklet identification numbers on each page of each response so that the training samples could be linked back to the identification numbers of the booklet they came from. They then sorted the papers by item and sent the samples to ETS for the rangefinding, while keeping the samples in Iowa City for those items to be reviewed at NCS.

Rangefinding² and creation of training sets took place at ETS for the three new reading blocks, all the writing prompts, and those civics blocks assigned to ETS staff for training. The process took place

² *Rangefinding* is the process of interpreting the scoring guide onto student responses. These scored responses are then used in the various training sets (i.e., anchor, practice, calibration, and qualification papers.)

in Iowa City for civics blocks assigned to NCS trainers. After review by each subject's coordinator, ETS returned the training sets to NCS staff, who reproduced them for scoring. Correct scores were written on all the anchor papers, while only the table leaders and trainers had keys for the practice, calibration (see Section 7.4.3), and qualification sets. Trainers also kept annotations, explaining the thought process behind each score assigned. If any of these changed during training for scoring, the table leaders kept notes explaining the reason.

7.3 CALIBRATION POLICIES

When scoring was expected to last longer than a few hours (for example, items with a state sample), a calibration set was created to refresh the training and avoid scorer drift. Responses were chosen from the current sample (see Section 7.4.3). The table leader invoked the calibration tool in the backreading tool (see Section 7.4.2) to create calibration sets. In general, each team scored calibration sets whenever they took a break longer than 15 minutes, such as when returning from lunch.

7.4 IMAGE SCORING

During processing, images of the student responses to each of the constructed-response items were digitized, placed in an image archive, and grouped according to scoring purpose (e.g., grade 4 reading, grade 4 writing, and validity). Two of the significant advantages of the image-scoring system were the ease of regulating the flow of work to scorers and the ease of monitoring scoring. The image system provided table leaders with tools to determine scorer qualification, to backread scores, to determine scorer calibration, to monitor interrater reliability, and to gauge the rate at which scoring was being completed. These tools are described in Sections 7.4.1 through 7.4.10.

7.4.1 Reader Qualification

Teams used copies of paper sets to determine whether each individual scorer was sufficiently prepared to score. All extended items in reading and civics and all items in writing required scorers to qualify. Short items in reading and civics did not require special qualification. Once scorers demonstrated readiness for scoring, either through the trainer's perception during the training of short constructed-response items or the formal 80 percent correct on the qualification set for extended constructed-response items, the table leader used the qualification tool to route work to the team. To make sure that all scorers had a common understanding of the training, the teams usually gathered around one terminal at the beginning of scoring, read several papers aloud, and scored them as a group. Then the teams broke into pairs for scoring, followed by individual scoring.

7.4.2 Backreading Process

After scoring began, NCS table leaders reviewed each scorer's progress using a backreading utility that allowed the table leader to review papers scored by each scorer on the team. Typically, a table leader reviewed approximately 10 percent of all responses scored by each scorer. Table leaders made certain to note the score the scorer awarded each response as well as the score a second scorer gave that same paper. This was done as an interrater reliability check. Alternatively, a table leader could choose to review all responses given a particular score to determine if the team as a whole was scoring consistently. Both of these review methods used the same display screen and showed the identification number of the scorer and the scores awarded. If the table leader disagreed with the score given an item, he or she discussed it with the scorer for possible correction. This discussion was used as a training tool to ensure

that all scorers assigned the same score to similar responses. Whether or not the table leader agreed with the score, he or she assigned a table-leader score in backreading. If this score agreed with the first score, the score was recorded only for statistical purposes. If the scores disagreed, then the table-leader score overrode the first score as the reported score.

7.4.3 Calibration Process

During backreading, the table leader had a pool of 300 responses for each item, which were available to use in the calibration process. The table leader viewed samples of these responses together with the scores assigned by the first and, if applicable, second scorer. From this pool, the table leader chose which responses to put into the pool that would be available to scorers during calibration, choosing responses that were scored correctly and were a good measure to keep scoring on track. From this pool, the table leader built sets with the desired number of responses, usually between 5 and 10, to be displayed to scorers for calibration. When the scorers invoked the calibration window, all scorers received the same responses and scored them. After scorers had finished scoring this pool, the table leader could look at reliability reports, which included only the data from the calibration set just run. Thus, this type of calibration served to refresh training and avoid drift in scoring. Because paper calibration sets from 1994 reading still existed, some reading teams used hard copies to calibrate scorers.

7.4.4 Short-Term Trend Rescoring

To measure comparability of this year's reading scoring to the scoring of the same items done in 1994, a minimum of 600 on-task responses per item from 1994 were scanned and loaded into the system with their scores from 1994 as the first score.

“On-task” responses generate scores of 1, 2, 3, 4, 5, 6, or 7. “Off-task” scores are received when the response

- is blank,
- is “I don’t know,”
- is totally erased,
- contains only comments for the test developer or scorer, or
- contains other unelicited remarks, drawings, or both.

These responses were loaded into a separate computer application to keep the data separate from regular scoring. At staggered intervals during the scoring process, the table leader released items from the 1994 cycle for scorers to read and score. Since the 1994 scores were preloaded as first scores, this year's teams in effect scored 100 percent of them a second time. Typically, the table leaders released 100 responses after training was finished but before beginning the scoring of current-year responses. The table leader and trainers then looked at reliability reports and *t*-tests and performed backreading to gauge consistency with 1994 scoring and make adjustments in scoring where appropriate. The remainder of the responses were released in equal amounts when scoring was one-third finished, two-thirds finished, and 90 percent finished. Note that the time intervals between rescored sessions varied with the number of responses to be scored per item.

Cross-year reliability results for each constructed-response item used in both 1998 and 1994 are provided in Tables C-7 through C-12 in Appendix C.

7.4.5 Validity Sets Tool

In order to score a validity set, the table leader updated the scorers' qualification to the same item they were regularly scoring for the validity application. Then, when scorers opened the scoring window, they received the validity papers. Validity papers, student responses prescored by the trainer during rangefinding, were used to prevent reader drift over the course of scoring. All scorers were in effect second scoring against the preloaded first scores. Unlike calibration sets, where all scorers read the same responses, with the validity sets, each scorer received different responses. Since the validity papers were under a separate application, the reliability reports and *t*-tests and backreading were available independently of the regular scoring. Before the next time the validity sets were used, the table leader used a tool to reset the items to make them available for scoring again, and also reset the reliability statistics. They accomplished this by executing a command in the report menu that then prompted them for a topic name. When the system carried out this command, it reset scoring and statistics only for the batch involved in the validity process.

7.4.6 *t*-Tests

To perform a *t*-test, the table leader executed a command in the report window that prompted the table leader for the item, the application, and the cubicle to which the item was assigned. The system then displayed an analysis of the data, which could be printed. The test results were based only on responses for which both scores were on-task. The display showed number of scores compared, number of scores with exact agreement, percent of scores with exact agreement, mean of the preloaded scores, mean of the currently assigned scores, mean difference, variance of the mean difference, standard error of the mean difference, and the *t* value.

7.4.7 Procedure for Monitoring Interrater Reliability

During the scoring of an item or the scoring of a calibration set, table leaders monitored progress using interrater reliability. This was done using a computer display that functioned in either of two modes: (1) to display information of all first readings versus all second readings, or (2) to display all readings of an individual that were also scored by other scorers versus the scores assigned by those other scorers. The information was displayed as a matrix, with scores awarded during first readings displayed in rows and scores awarded during second readings displayed in columns for mode one and the individual's scores in rows and all other scorers in columns for mode two. In this format, instances of exact agreement fell along the diagonal of the matrix. For completeness, data in each cell of the matrix contained the number and percentage of cases of agreement (or disagreement). The display also contained information on the total number of second readings and the overall percentage of reliability on the item. Also, the computer program provided on demand a separate calculation for exact and adjacent agreement rates for each writing item. Since the interrater reliability reports were cumulative, a printed copy of the reliability of each item was made periodically and compared to previously generated reports. Scoring staff saved printed copies of all final reliability reports and archived them with the training sets.

7.4.8 Process for Monitoring Frequency Distribution of Scores

For each topic, table leaders could run a report that showed the frequency distribution of scores. The report displayed separate frequencies for first and second scores. For each score level, the report showed the number of responses as an integer and as a percentage of the total. The report could be updated and printed on demand.

7.4.9 Process for Monitoring the Rate of Scoring

The table leaders were able to monitor work flow for each item using a status tool that displayed the number of responses scored, the number of responses first-scored that still needed to be second-scored, the number of responses remaining to be first-scored, and the total number of responses remaining to be scored. This allowed the team leaders and performance assessment specialists to accurately monitor the rate of scoring and to estimate the time needed for completion of the various phases of scoring.

7.4.10 Scoring Buttons

To assign a score, scorers clicked the mouse over a button displayed in the scoring window. Since buttons included only valid score values, there was no editing for out-of-range scores.

7.5 PAPER SCORING

The 1998 NAEP assessment used paper scoring only for one item, the “tax form” item in grade 12 reading. The tax form items were packaged into sets of 20. The development staff printed score sheets with the identification numbers for the 20 books contained in each packet on a score sheet. Separate score sheets were printed for the responses selected for second scoring. As soon as the last student response on any score sheet was completed, the score sheets were collected and taken to a central clerical support area to be scanned on the NCS paper-based scoring system using OpScan 7 scanners. As each sheet was processed, the scanning system edited the incoming data against tables to ensure that all responses were scored with one and only one valid score, and that only raters who were qualified to score an item scored it. Any discrepancies (e.g., no score assigned, double gridding, out-of-range scores, or invalid scorer identification numbers) were flagged and resolved before the data from that sheet were accepted into the scoring system database. Interrater agreement reports were generated on demand.

All score data were stored on personal computers at NCS as the responses were scanned. When scoring was completed, the scanner operator ran a query to make sure that all score sheets were accounted for. Once all edits were corrected, the PC file was renamed and put into an export file, which automatically created the mainframe file. This file was then uploaded to the mainframe to be merged with the mainframe student files.

7.6 LARGE-PRINT BOOKS AND OTHER SPECIAL ACCOMMODATIONS

NCS’s Performance Assessment Scoring Center (PSC) scored responses for a number of students whose special accommodations made the books nonscannable. These included large-print books as well as responses typed on a separate sheet of paper outside the booklet. Altogether, there were 37 such books for reading, 3 for civics, and 61 for writing.

Since the books were nonscannable, they were transported to the scoring center after processing. Clerical staff created a log to account for all the special accommodations books and a score sheet for each book listing the constructed-response items in that book. The books were routed to the table leaders in charge of the different items in each book. As the team scored an item, the table leader marked the score for that response, his or her scorer identification number, and the date scored. Once all items in each book for a given subject were scored, the scoring sheets were returned to development staff to enter those scores manually into the records for those books.

7.7 TRAINING

The training on each item was conducted by subject-area specialists from ETS and NCS. Dates for training and scoring can be found in Table 7-1. All of the assessments were scored item-by-item so that each scorer worked with only one set of rubrics at a time. After scoring all available responses, a team then proceeded with training and scoring the next item.

Training involved explaining the item and its scoring rubric to the team and discussing types of student responses that represented the various score points in the guide. Typically, two or three student responses were chosen to anchor each score point. When review of the anchor packet was completed, the scorers scored 10 to 20 “practice papers,” previously scored by subject-area specifications that represented the entire range of score points the item could receive. The trainer then led the team in a discussion of the practice papers to focus the scorers on how the scoring rubrics should be interpreted. After the trainer and table leader determined that the team had reached consensus, the table leader then released work on the image-scoring system to the scorers. The scorers initially took turns reading aloud their first “live” responses to the team or worked in pairs as a final check before beginning work individually. Once the practice session was completed, the formal scoring process began.

During training, scorers and the table leader kept notes of scoring decisions. The table leader was then responsible for compiling those notes and ensuring that all scorers were in alignment with the decisions. Teams varied greatly in the amount of time spent scoring as a group before breaking into individual scoring. This time ranged from five minutes to five hours.

7.8 SCORING

All scoring for each item was conducted via computer image except for the grade 12 reading “tax form” item. During scoring, the table leaders continued to compile notes on scoring decisions for the scorers’ reference and guidance. Additionally, table leaders closely monitored interrater reliability using both team and individual statistics as a reference. Consistently throughout the scoring of each item, the table leaders also performed backreading duties in which they reviewed a sample of the responses scored by each scorer on the team. The table leaders and performance assessment specialists continuously monitored the progress of each team and noted all scoring-related decisions to ensure that training and scoring progressed smoothly and in a timely manner.

7.9 INTERRATER RELIABILITY

A subsample of the reading, writing, and civics responses for each item were scored by a second scorer to obtain statistics on interrater reliability. In general, items administered only to the national sample received 25 percent second scoring, while those given in both the national and state samples received less. Thus, all civics items received 25 percent second scoring; all grade 12 reading received 25 percent second scoring; grades 4 and 8 reading items received 6 percent second scoring; grades 4 and 12 writing received 25 percent second scoring, and grade 8 writing items received 10 percent second scoring, except for the three 50-minute prompts, which received 25 percent second scoring because they were administered only in the national sample. The reliability information obtained from second scoring was also used by the team leaders to monitor the capabilities of all scorers and maintain uniformity of scoring across scorers. Reliability reports were generated on demand by the table leader, team leader, or performance assessment specialist as needed. They were displayed at a computer workstation. Printed copies were reviewed daily by both NCS and ETS lead scoring staff. In addition to the immediate feedback provided by the on-line reliability reports, each table leader could also review the actual responses scored by a scorer by using the backreading tool (see Section 7.4.2). In this way, the table

leader was able to monitor each scorer carefully and correct difficulties in scoring almost immediately with a high degree of efficiency. Table 7-2 provides the interrater reliability ranges.

Table 7-2
Interrater Reliability Ranges for the NAEP 1998 Assessment

Grade	Total Number of Unique Items	Number and Percentage of Items in Percentage Exact Agreement Range								
		60–69%		70–79%		80–89%		Above 90%		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Reading										
4	46	—	—	3	6.5	16	34.7	27	58.6	
8	69	1	1.4	4	5.8	28	40.6	36	52.2	
12	76	1	1.3	4	5.2	36	47.4	35	46.1	
Writing										
4	20	4	20.0	16	80.0	—	—	—	—	
8	23	18	78.3	4	17.4	—	—	—	—	
12	23	10	43.5	9	39.1	3	13.0	—	—	
Civics										
4	21	—	—	3	14.3	11	52.4	7	33.3	
8	28	1	3.6	6	21.4	17	60.7	4	14.3	
12	29	—	—	8	27.6	20	70.0	1	3.4	

Detailed results of interrater scoring reliability for the reading, writing, and civics constructed-response items are provided in Appendix C.

7.9.1 Scoring of Reading

The reading portion of the 1998 NAEP assessment included a total of 154 discrete constructed-response items. Four items were scored on an accelerated schedule between March 23 and 27. Scoring for the rest of the items took place between March 30 and April 24. The items scored included short-answer constructed responses and extended constructed responses. Each constructed-response item had a unique scoring rubric that identified the range of possible scores for the item and defined the criteria to be used in evaluating student responses. Note that these numerical values were for scoring only; they do not reflect the IRT-based scores used in analysis of the data. Chapter 15 describes the IRT values used in the data analysis.

During the course of the project, each team scored constructed-response items using a 2-, 3-, or 4-point scale as outlined below:

Dichotomous Items

- 1 = unacceptable response
- 2, 3, or 4 = acceptable response

(Items that originated in the 1992 NAEP used 1 and 4 for dichotomously scored items; items from the 1994 NAEP used 1 and 3; items developed in the 1997 field test used 1 and 2.)

Short Three-Point Items

- 1 = evidence of little or no comprehension
- 2 = evidence of partial or surface comprehension
- 3 = evidence of full comprehension

Extended Items

- 1 = unsatisfactory
- 2 = partial
- 3 = essential
- 4 = extensive

Table 7-3 lists the number of reading constructed-response items by item type and score-point level.

Table 7-3
*Number of Constructed-Response Items by Score-Point Levels
for the 1998 NAEP Reading Assessment*

Item Type	Grade	2- Category	3- Category	4- Category	Total
Reading Items – Total					
	4	19	11	6	36
	4/8	8	—	2	10
	8	11	16	5	32
	8/12	13	9	5	27
	12	22	19	8	49
Reading Items – New in 1998					
	4	3	2	1	6
	4/8	—	—	—	—
	8	1	4	1	6
	8/12	2	4	1	7
	12	—	—	1*	1
Reading Items – Trend from 1994					
	4	16	9	5	30
	4/8	8	—	2	10
	8	10	12	4	26
	8/12	11	5	4	20
	12	22	19	7	48

* Even though the grade 12 tax form stimulus had been used in previous assessments, it is counted here as a new item, because no rescoring was done and it was not used to measure trend.

Note: “—” indicates that this category was not applicable.

7.9.2 Scoring of Writing

The writing portion of the 1998 NAEP assessment included a total of 66 discrete constructed-response items. Scoring was conducted from April 28 to July 1. The amount of space given students to respond ranged from four pages for the 25-minute prompts to eight pages for the 50-minute prompts. Trainers used generic holistic scoring guides for each grade that identified the range of possible scores for the item and defined the criteria to be used in evaluating student responses. Note that these numerical values were for scoring only; they do not reflect the IRT-based scores used in analysis of the data. Chapter 19 describes the IRT values used in the data analysis.

All writing scoring rubrics used a six-point scale as follows:

6	=	excellent response
5	=	skillful response
4	=	sufficient response
3	=	uneven response
2	=	insufficient response
1	=	inappropriate (grade 4) or unsatisfactory (grade 8 and 12) response

The IRT numerical values used in analysis of the data are described in Chapter 19. Table 7-4 lists the number of writing constructed-response items by item type and score-point level.

Table 7-4
*Number of Constructed-Response Items by Score-Point Levels
for the 1998 NAEP Writing Assessment*

Item Type	Grade	6-Category	Total
Writing Items			
	4	20	20
	8	23	23
	12	23	23
Prewriting Items			
	4	20	20
	8	23	23
	12	23	23

7.9.2.1 Selective Rescoring

To address problems of low reliability at the upper-score levels, the ETS staff chose 13 prompts at grade 4, 9 at grade 8, and 8 at grade 12 to conduct a selective rescoring of responses. For each prompt involved in the selective rescoring, all responses that received either a first or second score of 5 or 6 were downloaded again to the scoring center. Specially selected trainers prepared additional training material focusing on the upper-level scores. One trainer did all of the grade 4 selectively rescored items with the team that the trainer had worked with throughout the project. Three trainers, each with a specially selected team of 10 scorers, prepared and carried out the rescoring for the grade 8 responses. One team rescored responses to narrative prompts, another rescored responses to informative prompts, and the third worked exclusively on persuasive prompts. At grade 12, one trainer and team rescored responses to six of the prompts, while another trainer and group rescored two. Scores of 5 and 6 from the original scoring were deleted from the active files, though copies were maintained to provide an audit trail. All frequency

distributions and interrater agreement reports attached to this report show the status of the items after the selective rescoring was finished.

7.9.2.2 *Prewriting Coding*

All students were given a blank page to use for prewriting planning. Codes were developed for the type of prewriting planning students did during the assessment. Prewriting coding took place during the evening shift from May 11 through 26, working 4 1/2 hours from 6:00 p.m. to 10:30 p.m. The first evening, the ETS writing coordinator trained the table leaders, who in turn trained their teams of clerical scorers the following evening.

The coders classified the prewriting strategies for all items using the same coding guide, anchor set, and practice papers. All coding was completed by May 26.

The codes used to classify prewriting were as follows:

1	=	rough draft
2	=	list
3	=	outline
4	=	diagram
6	=	picture
7	=	multiple

Note that when a response showed multiple prewriting strategies the different, specific strategies used by a student were not recorded by the coders. Also note that the code value of “5” was originally planned to indicate that the student used a table as a prewriting strategy. However, that category was eliminated before training began.

7.9.3 *Scoring of Civics*

The civics portion of the 1998 NAEP assessment included a total of 78 discrete constructed-response items. It was scored from April 27 to May 11 on an evening shift that ran from 6:00 p.m. to 10:30 p.m. The items scored included short-answer constructed responses and extended constructed responses. Each constructed-response item had a unique scoring rubric that identified the range of possible scores for the item and defined the criteria to be used in evaluating student responses.

During the course of the scoring, each team scored constructed-response items using a 3- or 4-point scale as outlined below:

Short Item

1	=	unacceptable
2	=	partial
3	=	acceptable

Extended Items

1	=	unacceptable
2	=	partial
3	=	acceptable
4	=	complete

The IRT numerical values used in analysis of the data are described in Chapter 23. Table 7-5 lists the number of constructed-response items by item type and score-point level.

Table 7-5
*Number of Constructed-Response Items by Score-Point Levels
for the 1998 NAEP Civics Assessment*

Item Type	Grade	3- Category	4- Category	Total
Civics Items				
	4	15	6	21
	8	22	6	28
	12	23	6	29

7.10 PREPARATION FOR TAPE CREATION

The 1998 NAEP assessment data collection resulted in several classes of data files—student, school, teacher, SD/LEP student, student/teacher match, and student-response information. Student-response information included response data from all assessed students in 1998. Data resolution activities occurred prior to the submission of data files to ETS and Westat to resolve any irregularities that existed.

7.11 UPLOADING OF SCORES TO THE NAEP DATABASE

An important quality control component of the image-scoring system was the inclusion, for purposes of file identification, of an exact copy of the student edit record, including the student booklet identification number, with every image of a student's response to a constructed-response item. When all the responses for an individual item had been scored, the system automatically submitted all item scores assigned during the scoring, along with their edit records, to a queue to be transmitted to the mainframe. A custom edit program matched the edit records of the scoring files to those of the original edit records on the mainframe. As matches were confirmed, the scores were applied to those individual files.

7.12 SD/LEP STUDENT QUESTIONNAIRES

SD/LEP questionnaires were completed for those students who were selected to participate in the assessment sample and were classified as students with disabilities (SD), or were categorized as limited English proficient (LEP) students. This questionnaire, which was completed by someone at the school knowledgeable about the student, asked about the student's background and the special programs in which the student participated. NCS processed the SD/LEP student questionnaires via optical mark recognition (OMR) scanning. Edits performed on the questionnaires assured that responses to questions fell within the valid range for that question. SD/LEP questionnaires were then matched to a student record. SD/LEP questionnaires that were not matched to a student document were cross-referenced with

the corresponding administration schedule, roster of questionnaires, and student data files to correct, if necessary, the information needed to result in a match.

7.13 SCHOOL QUESTIONNAIRES

In 1998, NCS continued to use intelligent character recognition (ICR) technology to capture percentage figures written by school personnel directly in boxes on the school questionnaire, rather than requiring the school official to grid ovals in a matrix. The data were then verified by an edit operator.

7.14 TEACHER QUESTIONNAIRE MATCH

The same processes that were followed in previous cycles were used in 1998 to achieve the best possible student/teacher match rate. Student identification numbers that were not matched to a teacher questionnaire were cross-referenced with the corresponding administration schedule and roster of questionnaires to verify (and change, if necessary) the teacher number, teacher period, and questionnaire number recorded on these control documents. The NAEP school identification numbers listed on the roster of questionnaires and teacher questionnaire were verified and corrected, if necessary. Once these changes were made, any duplicate teacher numbers existing within a school were, if possible, cross-referenced for resolution with the roster(s) of questionnaires. Since this information was located together on a single, central control document, the ability to match and resolve discrepant or missing fields was simplified.

7.15 DELIVERY

After all data-processing activities were completed, data cartridges, or diskettes were created and shipped via overnight delivery to ETS or Westat. NCS maintains a duplicate archive file for security and back-up purposes.

7.16 STORAGE OF DOCUMENTS

After batches of processed documents had successfully passed the editing process, they were sent to the NCS warehouse for storage. Due to the large number of rescoring projects done with NAEP material, the documents were unspiraled and sequenced by grade and book type after all of the processing and scoring was completed. This allows for efficient document retrieval to fill requests for specific booklets or book types for future projects. Unspiraled and sequenced booklets were then assigned a new inventory number by grade and book type and were sent back to the warehouse for storage. The storage locations of all documents were recorded on the inventory control system.

7.17 QUALITY CONTROL DOCUMENTS

ETS required that a random sample of books be pulled for an additional quality control check. The 1998 NAEP assessment of reading, writing, and civics documents to be scored were all image scanned (aside from the exception noted previously). For image-scanned documents, a scoring sheet was not used, so ETS used scores sent to them on a data tape to verify the accuracy of applied scores. All of these documents were selected prior to sending the booklets to storage and were then sent to ETS to verify the accuracy and completeness of the data. A random sample of all the questionnaires used in the 1998 NAEP assessment was also sent to ETS along with the quality assurance booklets used for processing and scoring. The quality control analyses of these booklets are discussed in Chapter 8.

Chapter 8

CREATION OF THE DATABASE, QUALITY CONTROL OF DATA ENTRY, AND CREATION OF THE DATABASE PRODUCTS¹

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8.1 INTRODUCTION

The data-processing, scoring, and editing procedures described in Chapters 6 and 7 resulted in the generation of disk and tape files containing various data for students (assessed and excluded), teachers, schools, and SD/LEP (students with disabilities and students with limited English proficiency) information. The weighting procedures described in Chapters 10 and 11 resulted in the generation of data files that included the sampling weights required to make valid statistical inferences about the population from which the 1998 fourth-, eighth- and twelfth-grade NAEP samples were drawn. These files were merged into a comprehensive, integrated database. The creation of the database is described in Section 8.2.

Section 8.2.2 describes a central repository or master catalog of this information. The master catalog is accessible by all analysis and reporting programs and provides correct parameters for processing the data fields and consistent labeling for identifying the results of the analyses.

To evaluate the effectiveness of the quality control of the data-entry process, the corresponding portion of the final integrated database was verified in detail against a sample of the original instruments received from the field. The results of this procedure are given in Section 8.3.

The integrated database was the source for the creation of the NAEP item information database and the NAEP secondary-use data files. These are described in Section 8.4.

8.2 CREATION OF THE DATABASE

The data processing conducted by National Computer Systems (NCS) resulted in the transmittal to ETS of four data files for each of fourth, eighth and twelfth grade: one file for the student background and item-response data and one file for each of the three questionnaires—teacher, school characteristics and policies, and SD/LEP. The sampling weights, derived by Westat, comprised additional files for each grade. (See Chapters 10 and 11 for a discussion of the sampling weights.) These files at each grade were the foundation for the analysis of the 1998 NAEP data. Before data analyses could be performed, these data files had to be integrated into a coherent and comprehensive database.

The database ultimately comprised four files per cohort: three student files (reading, writing, and civics) and a single school file. The student files were separated by subject area to improve maintenance and efficiency of the databases and data analyses. Each record on the student file contained a student's responses to the particular assessment booklet the student was administered (in the case of excluded

¹ John J. Ferris was responsible for the evaluation of the quality of the database and the data-entry process; Katharine E. Pashley was responsible for database generation under the supervision of David S. Freund; Alfred M. Rogers created the secondary-use data files.

students, a booklet was assigned, but the student-response fields contain a special code indicating no response), and the information from the questionnaire that the student's teacher completed. Additionally, for a student (assessed or excluded) who was identified as a student with a disability (SD) or of limited English proficiency (LEP), the data from the SD/LEP questionnaire are included. This questionnaire is filled out for all students both assessed and excluded, identified as SD, LEP, or both. (See Chapter 2 for information regarding assessment instruments.) Also added to the student files were variables with school-level information supplied by Quality Education Department, Inc. (QED), including demographic information about schools such as distributions of student populations by race/ethnicity. Since the teacher data are not from a representative sample of teachers and since the focus of NAEP is to report student-level results, the teacher-response data were added to the student records in cases where the student's teacher responded to a teacher questionnaire. The school data were on separate files that could be analyzed on their own and could also be linked to the student files through the unique school identification code.

The creation of the student data files for fourth, eighth, and twelfth grade began with the reorganization of the data files received from NCS. This involved two major tasks:

1. The files were restructured, eliminating unused (blank) areas to reduce the size of the files.
2. In cases where students had chosen not to respond to an item, the missing responses were recoded as either "omit" or "not reached," as discussed in Chapter 12 of this report.

8.2.1 Merging Files

Following the reorganization of data files, the student-response data were merged with the student-weights files. The resulting file was then merged with the SD/LEP and teacher data. In all merging steps, the 10-digit booklet identification (the 3-digit booklet number common to every booklet with the same block of items, a 6-digit serial number unique to the booklet a student was given, and a single check digit) was used as the matching criterion. The teacher data can be linked to the student data through four data variables: primary sampling unit (PSU), school code, teacher ID, and classroom period.

The school file for each grade was created by merging the school characteristics and policies questionnaire file with the file of school weights and school variables, supplied by Westat. The PSU and school codes were used as the matching criteria. Since some schools did not return a questionnaire, some of the records in the school file contained only school-identifying information and sampling-weight information. The school data can be linked to the student data through the PSU and school code variables.

When the student and school files for each grade had been created, the database was ready for analysis. In addition, whenever new data values (such as composite background variables or plausible values) were derived, they were added to the appropriate database files using the same matching procedures described above.

For archival purposes and to provide data for outside users, restricted-use data files and codebooks for each jurisdiction in the state assessment were generated from this database. The restricted-use data files contain all responses and response-related data from the assessment, including responses from the student booklets, teacher questionnaires, and school characteristics and policies questionnaires, scale scores, sampling weights, and variables used to compute standard errors.

8.2.2 Creating the Master Catalog

A critical part of any database is its processing control and descriptive information. Having a central repository for this information, which may be accessed by all analysis and reporting programs, will provide correct parameters for processing the data fields and consistent labeling for identifying the results of the analyses. The NAEP master catalog file was designed and constructed to serve these purposes for the NAEP database.

Each record of the master catalog contains the processing (e.g., response options), labeling, classification (e.g., content), and location information for each assessment exercise and other data variables in the NAEP database. The control parameters are used by the access routines in the analysis programs to define the manner in which the data values are to be transformed and processed.

Each data variable has a 50-character label in the master catalog describing the contents of the variable and, where applicable, the source of the variable. The variables with discrete or categorical response values (e.g., multiple-choice items and professionally scored items, but not weight variables) have additional label fields in the catalog containing 8- and 20-character labels for those response values. These short labels can be used for reporting purposes as a concise description of the responses for these discrete items.

The classification area of the master catalog record contains distinct fields corresponding to predefined classification categories (e.g., reading purpose and reading stance) for the data variables. For a particular classification variable, a nonblank value indicates the code of the subcategory within the classification category for the data variable. This classification area permits the grouping of identically classified items or other variables by performing a selection process on one or more classification fields in the master catalog.

According to NAEP design, it is possible for assessment exercises to appear in more than one student sample and in more than one block of exercises within each sample. The location fields of the catalog record contain age cohort, block, and, where applicable, the order within the block for each appearance of the assessment exercise.

The master catalog file was constructed concurrently with the collection and transcription of the national and state assessment data so that it would be ready for use by analysis programs when the database was created. As new data fields were derived and added to the database, their corresponding descriptive and control information were entered into the master catalog.

8.3 QUALITY CONTROL OF NAEP DATA ENTRY FOR 1998

This section describes the evaluation of the data-entry process for the 1998 national assessment. As in past years, the NAEP database was found to be more than accurate enough to support the analyses that were done. Overall, the observed error rates were comparable to those of past assessments, including those of the teacher questionnaires, which returned to more typical levels after displaying a somewhat elevated error rate in 1996. Derived error rate limits were around one error per thousand responses except for the school questionnaire data, which was nearly five per thousand (see discussion below).

The purpose of the analysis reported in this section is to assess the quality of the data resulting from the complete data-entry system, beginning with the actual instruments collected in the field and ending with the final machine-readable database used in the analyses. The process involved the selection of instruments at random from among those returned from the field and the comparison of each entire

instrument, character by character, with its representation in the final database. In this way, we were able to measure the error rates in the data as well as the success of the data-entry system.

Of course the observed error rate cannot be taken at face value. For example, the sample of school questionnaires that happened to be selected for close inspection contained two errors out of a total of 2,251 characters. To conclude that the entire school questionnaire database has an error rate of $\frac{2}{2,251}$, or .0009, would be too optimistic; we may simply have been lucky (or unlucky) with this particular random sample. What is needed is an indication of how bad the true error rate might be, given what we observed. Such an indication is provided by confidence limits. Confidence limits indicate how likely it is that a value falls inside a specified range in a specified context or distribution. In our analysis, the specified range is an error rate between zero and some maximum value beyond which we are confident at a specified level (traditionally 99.8%) that the true error rate does not lie (for the school questionnaires, this error rate is .0046). The specified context or distribution turns out to be the cumulative binomial probability distribution. An example will demonstrate this technique:

Let us say that 1,000 booklets were processed, each with 100 characters of data transcribed for a total of 100,000 characters. Let us say further that 5 of these characters were discovered to be in error in a random sample of 50 booklets that were completely checked; in other words, five errors were found in a sample of 5,000 characters. The following expression may be used to establish the probability that the true error rate is .0025 or less, rather than the single-value estimate of the observed rate, one in a thousand (.001):

$$\sum_{j=0}^5 \binom{5000}{j} \times .0025^j \times (1 - .0025)^{(5000-j)} = .0147$$

This is the sum of the probability of finding five errors plus the probability of finding four errors plus . . . etc. . . . plus the probability of finding zero errors in a sample of 5,000 with a true error rate of .0025; that is, the probability of finding five or fewer errors by chance when the true error rate is .0025. Notice that we did not use the size of the database in this expression. Actually, the assumption here is that our sample of 5,000 was drawn from a database that is infinite. The smaller the actual database is, the more confidence we can have in the observed error rate; for example, had there been only 5,000 in the total database, our sample would have included all the data, and the observed error rate would have been the true error rate. The result of the above computation allows us to say, conservatively, that .0025 is an upper limit on the true error rate with 98.53 percent (i.e., 1 - .0147) confidence; that is, we can be quite sure that our true error rate is no larger than .0025. As noted above, in NAEP quality control we use a more stringent confidence limit of 99.8%, which yields an even more conservative upper bound on the true error rate; with 99.8% confidence, we would state that the true error rate in this example is no larger than .0031, rather than .0025.

Calculations of true probabilities based on a combinatorial analysis have been done (e.g., Grant, 1964). Even when the sample was as much as 10% of a population of 50, the estimate of the probability based on the binomial theorem was not much different from the correct probability. NAEP does not sample at a rate greater than about 2%. Thus, the computations of the upper limits on the true error rates based on the binomial theorem are likely to be highly accurate approximations.

The individual instruments are briefly discussed in the following sections and a summary table (Table 8-1) gives the upper 99.8 percent confidence limit for the error rate for each of the instruments as well as the sampling information. The 99.8 percent confidence limit and the selection rates indicated were chosen to make these results comparable to those of administrations since 1983, all of which used the same parameters.

Table 8-1
Summary of Quality Control Error Analysis for NAEP 1998 Data Entry

Instrument/ Sample	Selection Rate	Different Booklets	Number of Booklets Sampled	Number of Characters Sampled	Number of Errors	Observed Error Rate	Upper 99.8% Confidence Limit
Student Booklets – Nat'l. Main	1/278	266	509	29,802	16	.0005	.0011
SD/LEP Student Questionnaires	1/77	3	217	19,964	8	.0004	.0010
Teacher Questionnaires	1/68	4	131	14,811	6	.0004	.0012
School Characteristics and Policies Questionnaires	1/53	3	40	2,251	2	.0009	.0046

8.3.1 Student Booklet Data

Data from about 140,000 students were processed across all samples in this assessment. Roughly one booklet in 278 was selected for close examination, which is a somewhat higher rate than that used in past assessments, when a rate of approximately one in 350 was used. The higher selection rate improves the chance of drawing sufficient numbers of each booklet when there is a large number of different books. The student data error rates were consistently low in all subject areas and across all three grades, typically involving an occasional multiple response taken as a single one. The overall quality of the data was very high.

8.3.2 SD/LEP Student Questionnaire Data

In this assessment, 16,703 SD/LEP student questionnaires were scanned. The quality control sampling rate was 1 in 77, a somewhat higher rate than that used in previous assessments. The data showed about the same error rate as that in the previous assessment—comparable to the rate for the student data. The few problems encountered involved the scanner's mistaking an erasure for a genuine response or failing to identify a multiple response as such.

8.3.3 Teacher Questionnaire Data

In this assessment, 8,959 teacher questionnaires were collected and scanned. About 1.5 percent of these questionnaires was sampled for the quality control procedure. The error rates for these questionnaires were about the same as for the student categories of data, and much improved over the 1996 error rates. Since there has been no significant change in the format of these questionnaires, the improved error rates may be attributable to improved administration procedures.

8.3.4 School Characteristics and Policies Questionnaire Data

In this assessment, 2,102 school characteristics and policies questionnaires were collected. They were sampled at a rate of about 1 in 53. Only two scanning errors were found in these questionnaires, both of which involved the scanner's failing to pick up a valid response. In spite of this apparently good error rate of less than one in a thousand, the application of the binomial theorem yields an upper bound on the true error rate of .0046 (at the same confidence level). While this may seem surprisingly high, an error rate limit derived from an application of the binomial theorem is appropriate here, since the sample population is large, as noted in the above discussion of the application of this technique.

8.4 NAEP DATABASE PRODUCTS

The NAEP database described to this point serves primarily to support analysis and reporting activities that are directly related to the NAEP contract. This database has a singular structure and access methodology that is integrated with the NAEP analysis and reporting programs. One of the directives of the NAEP contract is to provide secondary researchers with a nonproprietary version of the database that is portable to any computer system. In the event of transfer of NAEP to another client, the contract further requires ETS to provide a full copy of the internal database in a format that may be installed on a different computer system.

The secondary-use data files are designed to enable any researcher with an interest in the NAEP database to perform secondary analysis on the same data as those used at ETS. The data, documentation, and supporting files are distributed on CD-ROM media. For each sample in the assessment, the following files are provided: the response data file, a printable data file layout and codebook file, a file of control statements that will generate an SPSS system file, a file of control statements that will generate a SAS system file, and a machine-readable catalog file. Each codebook is in portable document file (PDF) format, which may be browsed, excerpted, and printed using the Adobe Acrobat Reader program on a variety of platforms. Each machine-readable catalog file contains sufficient control and descriptive information to permit the user who does not have either SAS or SPSS to set up and perform data analysis.

The remainder of this section summarizes the procedures used in generating the data files and related materials.

8.4.1 File Definition

The design of the 1998 assessment perpetuates two features of the 1990, 1992, 1994, and 1996 assessment design: the focused BIB or PBIB booklet design and the direct matching of teacher questionnaires to student assessment instruments. In addition, the sample of students who were excluded from the assessment is now incorporated into the appropriate assessed student subject-area sample.

The focused BIB or PBIB design within the main assessment isolates the primary subject areas to separate groups of booklets. This permits the division of the main sample into subject-specific subsamples. The data files generated from these subsamples need only contain the data that are relevant to their corresponding subject areas and are therefore smaller and more manageable than their counterparts in previous assessments.

The intent of the 1998 assessment design was to collect data from the reading, writing, or civics teachers of fourth-grade and eighth-grade students who participated in the assessments of, respectively, reading, writing, or civics. A portion of the teacher questionnaire contained questions that were directly related to each matched student. This change in the design afforded a very high matching rate between

student and teacher data. Therefore, for those subject areas in each grade cohort for which teacher data were collected, the teacher responses were appended to each student record in the secondary-use data files.

8.4.2 Definition of the Variables

The initial step in the variable definition process was the generation of a labels file of descriptors of the variables for each data file to be created. Each record in a labels file contains, for a single data field, the variable name, a short description of the variable, and processing control information to be used by later steps in the data-generation process. This file could be edited for deletion of variables, modification of control parameters, or reordering of the variables within the file. The labels file is an intermediate file only; it is not included on the released data files.

The variables on all data files are grouped and arranged in the following order: identification information, weights, derived variables, scale scores (where applicable), and response data. On the student data files, these fields are followed by the teacher-response data and the SD/LEP student questionnaire data, where applicable. The identification information is taken from the front covers of the instruments. The weight data include sample descriptors, selection probabilities, nonresponse adjustments, and replicate weights for the estimation of sampling error. The derived data include sample descriptions from other sources and variables that are derived from the response data for use in analysis or reporting.

For each subject area of the 1998 assessment, the item-response data within each block of questions (see Section 1.5) were left in their order of presentation. The responses to cognitive blocks that were not present in a given booklet were left blank, signifying a condition of “missing by design.”

In order to process and analyze the spiral sample data effectively, the user must also be able to determine, from a given booklet record, which blocks of item response data were present and their relative order in the instrument. This problem was remedied by the creation of a set of control variables, one for each block, which indicated not only the presence or absence of the block but its order in the instrument. These control variables are included with the derived variables.

8.4.3 Data Definition

To enable the data files to be processed on any computer system using any procedural or programming language, it was desirable that the data be expressed in numeric format. This was possible, but not without the adoption of certain conventions for re-expressing the data values.

During creation of the NAEP database, the responses to all multiple-choice items were transcribed and stored in the database using the letter codes printed in the instruments. This scheme afforded the advantage of saving storage space for items with 10 or more response options, but at the expense of translating these codes into their numeric equivalents for analysis purposes. The response data fields for most of these items would require a simple alphabetic-to-numeric conversion. However, the data fields for items with 10 or more response choices would require “expansion” before the conversion, since the numeric value would require two column positions. One of the processing control parameters on the labels file indicates whether or not the data field is to be expanded before conversion and output.

The ETS database contained special codes to indicate certain response conditions: “I don’t know” responses, multiple responses, omitted responses, not-reached responses, and unresolvable responses, which include out-of-range responses and responses that were missing due to errors in printing

or processing. The scoring guides for the reading, writing, and civics constructed-response items included additional special codes for ratings of “illegible,” “off task,” or nonrateable by the scorers. All of these codes had to be re-expressed in a consistent numeric format.

The following convention was adopted and used in the designation of these codes: The “illegible” response codes were converted to 5, the “off task” response codes were converted to 6, the “I don’t know” and nonrateable response codes were converted to 7, the “omitted” response codes were converted to 8, the “not reached” response codes were converted to 9, and the multiple-response codes were converted to 0, and the out-of-range and missing responses were coded as blank fields, corresponding to the “missing by design” designation.

This coding scheme created conflicts for those multiple-choice items that had seven or more valid response options as well as the “I don’t know” response and for those constructed-response items whose scoring guide had five or more categories. These data fields were also expanded to accommodate the valid response values and the special codes. In these cases, the special codes were “extended” to fill the output data field: The “I don’t know” and nonrateable codes were extended from 7 to 77, the omitted response codes were extended from 8 to 88, and so on.

Each numeric variable on the secondary-use files was classified as either continuous or discrete. The continuous variables include the weights, scale scores, identification codes, and questionnaire responses where counts or percentages were requested. The discrete variables include those items for which each numeric value corresponds to a response category. The designation of “discrete” also includes those derived variables to which numeric classification categories have been assigned. The constructed-response items were treated as a special subset of the discrete variables and were assigned to a separate category to facilitate their identification in the documentation.

8.4.4 Data File Catalogs

The catalog file is created by the GENCAT program from the labels file and the 1998 master catalog file. Each record on the labels file generates a catalog record by first retrieving the master catalog record corresponding to the field name. The master catalog record contains usage, classification, and response code information, along with positional information from the labels file, field sequence number, output column position, and field width. Like the labels file, the catalog file is an intermediate file and is not included on the released data files.

The information for the response codes consists of the valid data values for the discrete numeric fields, and a 20-character description of each. The GENCAT program uses additional control information from the labels file to determine if extra response codes should be generated and saved with each catalog record. The first flag controls generation of the “I don’t know” or nonrateable response code; the second flag regulates omitted or not-reached code generation; and the third flag denotes the possibility of multiple responses for that field and sets up an appropriate response code. All of these control parameters, including the expansion flag, may be altered in the labels file by use of a text editor, in order to control the generation of data or descriptive information for any given field.

The catalog file supplies control and descriptive information for many of the subsequent secondary-use data-processing steps.

8.4.5 Data File Layouts

The data file layouts are the first user product to be generated in the secondary-use data files process. The generation program, GENLYT, uses a catalog file as input and produced a printable file. The layout file is little more than a formatted listing of the catalog file.

Each line of the layout file contains the following information for a single data field: sequence number, field name, output column position, field width, number of decimal places, data type, value range, key or correct response value, and a short description of the field. The sequence number of each field is implied from its order on the labels file. The field name is an 8-character label for the field that is to be used consistently by all secondary-use data files materials to refer to that field on that file. The output column position is the relative location of the beginning of that field on each record for that file, using bytes or characters as the unit of measure. The field width indicates the number of columns used in representing the data values for a field. If the field contains continuous numeric data, the value under the number of decimal places entry indicates how many places to shift the decimal point before processing data values.

The data type category uses five codes to designate the nature of the data in the field: Continuous numeric data are coded "C"; discrete numeric data are coded "D"; constructed-response item data are coded either "OS" (if the item was dichotomized for scaling) or "OE" (if it was scaled under a polytomous response model). Additionally, the discrete numeric fields that include "I don't know" response codes are coded "DI." If the field type is discrete numeric, the value range is listed as the minimum and maximum permitted values separated by a hyphen to indicate range. If the field is a response to a scorable item, the correct option value, or key, is printed. If the field is an assigned score that was scaled as a dichotomous item using cut-point scoring, the range of correct scores is printed. Each variable is further identified by a 50-character descriptor.

8.4.6 Data Codebooks

The data codebook is a printed document containing complete descriptive information for each data field. Most of this information originates from the catalog file, while the remaining data comes from the counts file and the IRT parameters file.

Each data field receives at least one line of descriptive information in the codebook. If the data type is continuous numeric, no more information is given. If the variable is discrete numeric, the codebook lists the response codes, response-code labels, and frequencies of each value in the data file. Additionally, if the field represents an item used in IRT scaling, the codebook lists the parameters used by the scaling program.

Certain blocks of cognitive items in the 1998 assessment that are to be used again in later assessments for trend comparisons have been designated as nonreleased. In order to maintain their confidentiality, generic labels have been substituted for the response category descriptions of these items in the data codebooks and the secondary-use files.

The frequency counts are not available on the catalog file, but must be generated from the data. The GENFREQ program creates the counts file using the field name to locate the variable in the database, and the response code values to validate the range of data values for each field. This program also serves as a check on the completeness of the response codes in the catalog file, as it flags any data values not represented by a value and label.

The IRT parameter file is linked to the catalog file through the field name. Printing of the IRT parameters is governed by a control flag in the classification section of the catalog record. If an item has been scaled for use in deriving the scale score estimates, the IRT parameters are listed to the right of the values and labels, and the score value for each response code is printed to the immediate right of the corresponding frequency.

The layout and codebook files are written by their respective generation programs to print-image disk data files. Draft copies are printed and distributed for review before the production copy is generated. The production copy combines the layout and codebook files for each sample in a portable document file (PDF) format. This file may be browsed, excerpted and printed using the Adobe Acrobat Reader program on a variety of platforms and operating systems.

8.4.7 Control Statement Files for Statistical Packages

An additional requirement of the NAEP cooperative agreement is to provide, for each secondary-use data file, a file of control statements each for the SAS and SPSS statistical systems that will convert the raw data file into the system data file for that package. Two separate programs, GENSAS and GENSPX, generate these control files using the catalog file as input.

Each of the control files contains separate sections for variable definition, variable labeling, missing value declaration, value labeling, and creation of scored variables from the cognitive items. The variable definition section describes the locations of the fields, by name, in the file, and, if applicable, the number of decimal places or type of data. The variable label identifies each field with a 50-character description. The missing value section identifies values of those variables that are to be treated as missing and excluded from analyses. The value labels correspond to the response codes in the catalog file. The code values and their descriptors are listed for each discrete numeric variable. The scoring section is provided to permit the user to generate item score variables instead of the item response variables.

Each of the code generation programs combines three steps into one complex procedure. As each catalog file record is read, it is broken into several component records according to the information to be used in each of the resultant sections. These record fragments are tagged with the field sequence number and a section sequence code. They are then organized by section code and sequence number. Finally, the reorganized information is output in a structured format dictated by the syntax of the processing language.

The generation of the system files accomplishes the testing of these control statement files. The system files are saved for use in special analyses by NAEP staff. These control statement files are included on the distributed data files to permit users with access to SAS and/or SPSS to create their own system files.

8.4.8 Machine-Readable Catalog Files

For those NAEP data users who have neither SAS nor SPSS capabilities, yet require processing control information in a computer-readable format, the distribution files also contain machine-readable catalog files. Each machine-readable catalog record contains processing control information, IRT parameters, and response codes and labels. The machine-readable catalog files are described in and are available as part of the secondary-use data files package for use in analyzing the data with programming languages such as SAS and SPSS (see the *NAEP 1998 Reading Data Companion*, [Rogers, Kokolis,

Stoeckel, & Kline, 2000], the *NAEP 1998 Writing Data Companion*, [Rogers, Kokolis, Stoeckel, & Kline, 2000], and the *NAEP 1998 Civics Data Companion*, [Rogers, Kokolis, Stoeckel, & Kline, 2000]).

8.4.9 NAEP Data on Disk

The complete set of secondary-use data files described above are available on CD-ROM as part of the NAEP Data on Disk product suite. This medium is ideal for researchers and policy makers operating in a personal computing environment.

The NAEP Data on Disk product suite includes two other components that facilitate the analysis of NAEP secondary-use data. The PC-based NAEP data extraction software, NAEPEX, enables users to create customized extracts of NAEP data and to generate SAS or SPSS control statements for preparing analyses or generating customized system files. The NAEP analysis modules, which currently run under SPSS[®] for Windows[™], use output files from the extraction software to perform analyses that incorporate statistical procedures appropriate for the NAEP design (e.g., minimum sample size requirements, appropriate row-wise and column-wise t-tests, and automatic calculation of correct and consistent standard errors and degrees of freedom).

Chapter 9

OVERVIEW OF PART II: THE ANALYSIS OF 1998 NAEP DATA¹

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9.1 INTRODUCTION

The purpose of this chapter is to summarize some information from previous chapters that is integral to the analysis of NAEP data, to summarize the analysis steps used for all subjects, and to indicate what information is in each of the remaining chapters. The overview of the analyses conducted on the 1998 NAEP data focuses on the common elements of the analyses used across the subject areas of the assessment. Some of this information is available only within this chapter. Details by subject area are provided in Chapters 14 through 24.

The organization of this chapter is as follows:

- Section 9.2 provides a short overview of the NAEP design for 1998. To provide additional background information, the section also provides a short description of the samples selected for 1998. Chapters 1 through 7 provide this same information in much more detail.
- Section 9.3 summarizes the steps in analysis common to all subject areas. Some of this information is described in more detail in other chapters. The rest is included only within this chapter. The topics covered are as follows:
 - ◆ Section 9.3.1 briefly describes the preparation of the final sampling weights. Detailed information about the weighting procedures is given in Chapters 10 and 11. Detailed information about the sampling design is in Chapters 3 and 4.
 - ◆ Section 9.3.2 provides information about the scoring reliability of constructed-response items. It provides information about the reliability measures used with the NAEP data during analysis. Chapter 7 contains information about the reliability procedures used during the scoring process.
 - ◆ Section 9.3.3 summarizes the information provided by the teacher questionnaires, and indicates its use during the analysis process.
 - ◆ Section 9.3.4 provides a description of the item properties examined for background questions and for cognitive items. It includes a description of the classical item statistics examined for both dichotomously (right versus wrong) and polytomously (more than two response categories) scored items. It also includes a description of the item-level results available from summary data tables. Chapter 13 contains more information about the conventions used in creating these summary tables. Finally, a thorough description of differential item functioning analyses is provided.

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- ◆ Section 9.3.5 summarizes the steps used to scale NAEP data. The steps include item response theory (IRT) scaling of the items, generating plausible values to account for measurement error, transforming the results to the final reporting scale, creating composite scores if necessary, and providing tables of reported statistics. Details of the theory behind these steps are available in Chapter 12.
 - ◆ Section 9.3.6 provides some information about previous results of dimensionality analyses.
 - ◆ Finally, Section 9.3.7 gives an introduction to hypothesis testing and drawing correct conclusions about NAEP data. Specific information about which hypothesis test procedures were used for different purposes is provided in Chapter 13.
- Section 9.4 contains a description of the information provided in Chapters 10 through 24 of this report.

9.2 SUMMARY OF THE NAEP DESIGN

As described in Chapter 1, the 1998 NAEP comprised three components. One component encompassed major assessments in reading, writing, and civics, providing detailed information about student scale scores at the fourth-, eighth-, and twelfth-grade levels of nonpublic and public schools. The second major component was the state assessment at the fourth- and eighth-grade levels in reading and at the eighth-grade level in writing. In addition to the two major components, special studies—a civics special trend study, a 50-minute writing study, and a classroom-based study of writing—were conducted. The results from and procedures used in these special studies are reported in separate documents.

Results from the analyses described in the following chapters were published in the following reports:

- *The NAEP 1998 Reading Report Card for the Nation and the States* (Donahue et al., 1999), which provides both public- and nonpublic-school data for major NAEP reporting subgroups for all of the jurisdictions that participated in the state assessment program, as well as selected results from the 1998 national reading assessment.
- *The NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald et al., 1999), which provides both public- and nonpublic-school data for major NAEP reporting subgroups for all of the jurisdictions that participated in the state assessment program, as well as selected results from the 1998 national writing assessment.
- *The NAEP 1998 Civics Report Card for the Nation* (Lutkus et al., 1999), which provides both public- and nonpublic-school results for major NAEP reporting subgroups from the 1998 national civics assessment.

Because the samples of students included in the 1998 NAEP assessment are listed and described in detail in Chapter 1, only a brief description of these samples is given here. The 1998 national samples consisted of the main NAEP samples for reading, writing, and civics, which were based on a common set of assessment procedures including grade-level samples, and samples for these special studies; a study of

trends in civics performance (1988–1998); a study in which students were administered a 50-minute writing assessment; and a study of classroom writing.

As described in Chapters 1 and 2, for each subject area in the main and state assessments, blocks of items were used to create a large number of different assessment booklets according to a focused design. The 1998 civics assessment used a focused balanced incomplete block (BIB) design. The 1998 reading and writing assessments used focused partially balanced incomplete block (focused PBIB) designs. In a focused BIB design, each block of cognitive items appears in the same number of booklets. To balance possible block-position main effects, each block appears an equal number of times in each position. In addition, the focused BIB design requires that each block of items be paired in a booklet with every other block of items. If one of the features that define a focused BIB design is not evident, then the design is called a focused partially balanced incomplete block (PBIB) design.

9.3 ANALYSIS STEPS

Because the analysis methods are not identical across subject areas, a separate analysis chapter has been included for each major assessment. The procedures used depended on whether assessment items were scored dichotomously (right versus wrong) or polytomously (more than two categories of response) and whether links across grade levels were required. Basic procedures common to most or all of the subject area analyses are summarized here. The order is essentially that in which the procedures were carried out.

9.3.1 Preparation of Final Sampling Weights

Because NAEP uses a complex sampling design (Chapters 3 and 4) in which students in certain subpopulations have different probabilities of inclusion in the sample, the data collected from each student must be assigned a weight to be used in analyses. The 1998 NAEP weights were provided by Westat, the NAEP contractor in charge of sampling. Detailed information about the weighting procedures is available in Chapters 10 and 11 and in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

9.3.2 Reliability of Scoring Constructed-Response Items

A minimum of 25 percent of the responses for reading, writing, and civics items involved only in the national assessment and 6 percent of the responses for reading and writing items involved in both the national and state assessments were scored by a second reader to obtain statistics on interreader (interrater) reliability. Ranges for percentage of exact agreement for the combined state and national assessments of reading, writing, and civics can be found in Table 7-2. This reliability information was also used by the team leaders to monitor the capabilities of all readers and maintain uniformity of scoring across readers. More information about this use of the reliability information is provided in Chapter 7.

In addition to reliability information calculated and used during the scoring process, several additional reliability measures are calculated for constructed-response items after the item response data has been placed in the NAEP database. They appear in Appendix C. These include a final percentage exact agreement, the intraclass correlation, Cohen's Kappa (Cohen, 1968), and the product-moment correlation between the scores for the first and second readers. These measures are summarized in Zwick (1988), Kaplan and Johnson (1992), and Abedi (1996). Each measure has advantages and disadvantages for use in different situations. In this report, the percentage exact agreement is reported for all

constructed-response items, Cohen's Kappa is reported for dichotomously scored constructed-response items, and the intraclass correlation is reported for polytomously scored constructed-response items.

9.3.3 Teacher Questionnaires

Teachers of assessed students were asked to complete a two-part questionnaire. The first part of the questionnaire pertained to the teacher's background and training. The second part pertained to the procedures used by the teacher for specific classes containing assessed students. See Chapter 2 for a description of the teacher questionnaires.

To analyze the data from the teacher questionnaires at grades 4 and 8 with respect to the students' data, each teacher's questionnaire had to be matched to all of the sampled students who were taught by that teacher. In the subsequent chapters, two separate match rates for each grade are given. The first is the percentage of students that could be matched to both the first and second parts of the teacher questionnaire. For these students, information is available about the background and training of their teachers and about the methods used in the particular class they attended. The second match rate is the percentage of students that could be matched to the first part of the teacher questionnaire. This match rate is larger because more students could be matched with information about a teacher than with information about the particular class they attended. Note that these match rates only reflect the student-level missing data. They do not reflect the additional missing data due to item-level nonresponse on the part of teachers. Variables derived from the teacher questionnaires were used as reporting variables at the student level and as variables that contributed to conditioning for the appropriate samples.

Teachers of students who were in the grade 4 assessment sample were asked to complete a two-part questionnaire. As with the grade 8 teacher questionnaire, the first part pertained to the teacher's background and training. Unlike the grade 8 teacher questionnaire, the second part pertained to only a single class that the teacher taught. In development of the questionnaires, it was thought that fourth-grade teachers would teach one class in each subject. In practice, that was found to be untrue for a number of teachers. A single student-teacher match rate matching students to the first part of the questionnaire is reported for grade 4 in the following chapters.

9.3.4 Analysis of Item Properties: Background and Cognitive Items

The first step in the analysis of the 1998 data was item-level analysis of all instruments. Item analyses were performed separately for each grade on each item in each subject area. Each block of items was analyzed separately by grade, with the total score on the block (including the analyzed item) used as the criterion score for statistics requiring such a score. In the cases where final weights were not available, preliminary weights were used in these preliminary analyses. The item analysis of cognitive items was repeated after scaling of the items was completed.

9.3.4.1 Background Items

For each NAEP background item, the unweighted and weighted percent of students who gave each response were examined, as well as the percent of students who omitted the item and the percent who did not reach the item. The number of respondents was also tabulated. These preliminary analyses were conducted within grade cohorts and within major reporting categories. If unexpected results were found, the item data and the encoding of responses were rechecked.

9.3.4.2 Cognitive Items

All NAEP cognitive items were subjected to analyses of item properties. These analyses included conventional item analyses and incorporated examinee sampling weights. Item analysis was conducted at the block level so that the “number correct” scores for students responding to an item, selecting each option of an item, omitting an item, or not reaching an item, is the average number of correct responses for the block containing that item. Because of the inclusion of polytomously scored items in the cognitive instruments, it was necessary to use special procedures for these items. The resulting statistics are analogous to those for the dichotomously scored items, as listed below.

Dichotomously Scored Items. These items were analyzed using standard procedures that result in a report for each item that includes:

- for each option of the item, for examinees omitting and not reaching the item, and for the total sample of examinees:
 - ◆ the number of examinees,
 - ◆ the percentage of examinees,
 - ◆ the mean of number-correct scores for the block in which the item appears, and
 - ◆ the standard deviation of number-correct scores for the block in which the item appears;
- the percentage of examinees providing a response that was “off-task”;
- $p+$, the proportion of examinees who received a correct score on the item (ratio of number correct to number correct plus wrong plus omitted);
- Δ , the inverse-normally transformed $p+$ scaled to mean 13 and standard deviation 4;
- the biserial correlation coefficient between the item and the number-correct scores for the block in which the item appears; and
- the point-biserial correlation coefficient between the item and the number-correct scores for the block in which the item appears.

Polytomously Scored Items. Enhanced procedures were employed for polytomously scored items. Methods parallel to those used for dichotomously scored items resulted in values reported for each distinct response category for the item. Response categories for each item were defined in two ways—one based on the original codes for responses as specified in the scoring rubrics used by the scorers, and one used in defining the item response theory (IRT) model scales. The latter was based on a scoring guide developed by subject-area and measurement experts and it defined the treatment of each response category in scaling. For example, a constructed-response item with four response categories would initially have seven categories (not-reached, omitted, off-task, and the four valid response categories). Another set of statistics resulted from mapping the response categories (excluding not-reached) into a new set of categories reflecting the scoring guide for the items as scaled. A constructed-response item with ordered categories, for example, would be mapped into a set of integers in a corresponding order. The scoring guide could result in the collapsing of (combining of) some response categories. The response categories, based on the final scoring guide developed by subject-area and measurement experts, were used to calculate the polytomously scored item statistics.

The following statistics, analogous to those for dichotomously scored items, were computed:

- The percentage of examinees providing a response that was “off-task.”

- In place of $p+$, the ratio of the mean item score to the maximum-possible item score was used.
- In place of Δ , the inverse-normally transformed ratio of the mean item score to the maximum-possible item score scaled to mean 13 and standard deviation 4.
- The polyserial correlation coefficient was used in place of the biserial.
- The Pearson correlation coefficient, or R-polyserial was used in place of the point-biserial.

9.3.4.3 *Tables of Item-Level Results*

Tables were created of the percentages of students choosing each of the possible responses to each item within each of the samples administered in 1998. The results for each item were cross-tabulated against the basic reporting variables such as region, gender, race/ethnicity, public/nonpublic school, and parental education. All percentages were computed using the sampling weights. These tables are referred to as the test question section of the electronically available summary data tables for each sample. In the summary data tables, the sampling variability of all population estimates was obtained by the jackknife procedure used by ETS in previous assessments.

9.3.4.4 *Tables of Block-Level Results*

Tables summarizing the item statistics for all of the items within each block are provided in Chapters 16, 17, 20, 21, and 24. These tables contain statistics calculated using student weights to account for NAEP's complex sampling of students, as well as the unweighted sample size. Weighted summary statistics estimate the results for the whole population of students in the NAEP sampling frame.

- The **unweighted sample size** is the number of students in the reporting sample who receive each block in the assessment. It is the number of students contributing to the other statistics presented in the tables.
- The **weighted average item score** for the block is the average, over items, of the score means for each individual weighted items in the block. Missing responses to polytomous items before the last observed response in a block are also considered intentional omissions and scored so that the response is in the lowest category. Occasionally, extended constructed-response items are the last item in a block of items. Because considerably more effort is required of the student to answer these items, nonresponse to an extended constructed-response item at the end of a block is considered an intentional omission (and scored as the lowest category) unless the student also did not respond to the item immediately preceding that item. In that case, the extended constructed-response item is considered not reached and treated as if it had not been presented to the student. In the case of the main and state writing assessment, there is a single constructed-response item in each separately-timed block. In the writing assessment when a student does not respond to the item or when the student provides an off-task response, the response is also treated as if the item had not been administered. Scaling areas in NAEP are determined a priori by grouping items into content areas for which overall performance is deemed to be of interest, as defined by the frameworks developed by the National Assessment Governing Board (NAGB). A scale score θ_k is defined a priori by the collection of items representing that scale. What is important, therefore, is that the models capture salient information in the response data to effectively summarize the overall performance on the content area of the populations and subpopulations being assessed in the content areas.

- The **weighted average R-polyserial correlation** is the average, over items, of the item-level R-polyserial correlations (R-biserial for dichotomous items) between the item and the number-correct block score. For each item-level R-polyserial, total block number-correct score (including the item in question, and with students receiving zero points for all not-reached items) was used as the criterion variable for the correlation. The number-correct score was the sum of the item scores for a student where correct dichotomous items are assigned 1 and correct polytomous (or multiple-category) items are assigned the score category for the response. Data from students classified as not reaching the item were omitted from the calculation of the statistic.
- The **weighted alpha reliability** is the average of the polyserial correlations for polytomous items and the biserial correlation for the dichotomous items within a block. As for the weighted average R-polyserial correlations, the total block number-count score was used as the criterion.
- The **weighted proportion of students attempting the last item** of a block (or, equivalently, one minus the proportion of students not reaching the last item) is often used as an index of the degree of speededness associated with the administration of that block of items. Mislevy and Wu (1988) discussed these conversions.

9.3.4.5 Differential Item Functioning Analysis of Cognitive Items

Differential item functioning (DIF) analysis refers to procedures that assess whether items are differentially difficult for different groups of examinees. DIF procedures typically control for overall between-group differences on a criterion, usually test scores. Between-group performance on each item is then compared within sets of examinees having the same total test scores.

DIF analyses were conducted for items in the national main assessments in reading, writing, and civics that had not previously been studied for differential item functioning. Each set of analyses involved three reference group/focal group comparisons: male/female, White/Black, and White/Hispanic.

The Mantel-Haenszel Procedure. The DIF analyses of the dichotomous items were based on the Mantel-Haenszel chi-square procedure (Mantel & Haenszel, 1959), as adapted by Holland and Thayer (1988). The procedure tests the statistical hypothesis that the odds of correctly answering an item are the same for two groups of examinees that have been matched on some measure of proficiency (usually referred to as the matching criterion). The DIF analyses of the polytomous items were completed using the Mantel-Haenszel ordinal procedure which is based on the Mantel procedure (Mantel, 1963), (Mantel & Haenszel, 1959). These procedures compare proportions of matched examinees from each group in each polytomous item-response category.

For both types of analyses, the measure of proficiency used is typically the total item score on some collection of items. Since, by the nature of the BIB or PBIB design, booklets comprise different combinations of blocks, there is no single set of items common to all examinees. Therefore, for each student, the measure of proficiency used was the total item score on the entire booklet. These scores were then pooled across booklets for each analysis. This procedure is described by Allen and Donoghue (1994, 1996). In addition, because research results (Zwick & Grima, 1991) strongly suggest that sampling weights should be used in conducting DIF analyses, the weights were used.

For each dichotomous item in the assessment, an estimate of the Mantel-Haenszel common odds ratio, α_{MH} , expressed on the ETS delta scale for item difficulty, was produced. The estimates indicate the difference between reference group and focal-group item difficulties (measured in ETS delta scale units), and typically run between about +3 and -3. Positive values indicate items that are differentially easier for the focal group than the reference group after making an adjustment for the overall level of proficiency in

the two groups. Similarly, negative values indicate items that are differentially harder for the focal group than the reference group. It is common practice at ETS to categorize each item into one of three categories (Petersen, 1988): “A” (items exhibiting no DIF), “B” (items exhibiting a weak indication of DIF), or “C” (items exhibiting a strong indication of DIF). Items in category “A” have Mantel-Haenszel common odds ratios on the delta scale that do not differ significantly from 0 at the $\alpha = .05$ level or are less than 1.0 in absolute value. Category “C” items are those with Mantel-Haenszel values that are significantly greater than 1 and larger than 1.5 in absolute magnitude. Other items are categorized as “B” items. A plus sign (+) indicates that items are differentially easier for the focal group; a minus sign (-) indicates that items are differentially more difficult for the focal group.

The ETS/NAEP DIF procedure for polytomous items uses the Mantel-Haenszel ordinal procedure (Mantel & Haenszel, 1959). The summary tables of identified polytomous items contain generalizations of the dichotomous A, B, and C categories: “AA,” “BB,” or “CC.”

SIBTEST Procedure. For the first time in the 1998 assessment, ETS introduced the SIBTEST (Shealy & Stout, 1993) DIF procedure into the analyses of NAEP items. All items new in 1998 were examined using both Mantel-Haenszel and SIBTEST procedures for DIF. Like the Mantel-Haenszel procedure, SIBTEST seeks to compare the performance of the focal and reference group members of similar ability. The Mantel-Haenszel procedure uses matching on total score to establish comparability; SIBTEST uses a linear “regression correction” (see [Shealy & Stout, 1993] for details) to obtain more accurate matching of the groups. Simulation results (Chang, et al., 1995; Roussos & Stout, 1996) indicate that the Mantel-Haenszel procedure and SIBTEST function similarly for most items, although SIBTEST maintains better Type I error control for items with extreme discrimination IRT(a-parameters).

Like the Mantel-Haenszel procedure, SIBTEST analyses used the entire booklet score in forming the matching variable. These results were then pooled across the booklets using a procedure described by Chang, et al. (1995) and implemented by Donoghue (1998b). Sampling weights were used for SIBTEST analyses.

The SIBTEST measure of DIF, β , is in the metric of Dorans and Kulick’s (1986) standardized mean difference (SMD). As an effect size measure, the SMD divided by the item standard deviation was used (as was done for polytomous items with the Mantel procedure). For an item to receive the designation C (dichotomous items) or CC (polytomous items), two criteria had to be met: (a) the estimate of β had to be significantly different from zero, and (b) the absolute value of the effect size (SMD/std. dev.) had to be at least .25.

In 1998, results for the SIBTEST procedure were quite similar to those for the Mantel-Haenszel procedure. All but 1 C or CC item identified by the Mantel-Haenszel procedure was also identified by SIBTEST. No C or CC items were uniquely identified by SIBTEST. All C or CC items identified by either procedure were referred to DIF committees (described below).

Standardization Method. In standard DIF analyses such as Mantel-Haenszel and SIBTEST, it is well established that a moderately long matching test is required for the procedures to be valid (i.e., identify DIF in items unconfounded by other irrelevant factors [e.g., Donoghue, Holland, & Thayer, 1993]). In the main and state NAEP writing assessments, the booklets contain two 25-minute blocks, with one writing prompt per block. Thus, each examinee has (at most) two responses on six-category prompts. This is too little information for the test statistics associated with Mantel (1963) or SIBTEST (Shealy & Stout, 1993) procedures to function effectively. Thus, standard DIF approaches based on statistical tests of items are likely to function poorly, and so were not used in the writing assessment analysis.

In the writing assessment, the standardization method of Dorans and Kulick (1986) was used to produce descriptive statistics. The matching variable was the total score on the booklet. As in other NAEP DIF analyses, the statistics were computed based on pooled booklet matching; the results are accumulated over the booklets in which a given item appears (e.g., Allen & Donoghue, 1996). This analysis was accomplished using the standard NAEP DIF program NDIF that also calculates the Mantel-Haenszel statistic. The statistic of interest appears under the label SMD for "standardized mean difference." First, differences in the item score between the two comparison groups are calculated for each level of the booklet score. Then, the SMD for the item is the average of these differences divided by their standard deviation.

Significance testing was not performed, due to the low reliability of the matching variable. Instead, the standardized mean difference values were used descriptively, to identify those items that demonstrate the most evidence of DIF. A rough criterion used in the past to describe DIF for polytomous items has been to create the ratio of the SMD to the item's standard deviation and flag any item with a ratio of at least .25. A criteria of at least .10 could also be arbitrarily used to identify items with the most evidence of DIF.

All NAEP DIF Procedures. All NAEP DIF analyses used rescaled sampling weights. A separate rescaled weight was defined for each comparison as

$$\text{Rescaled Weight} = \text{Original Weight} \cdot \frac{\text{Total Sample Size}}{\text{Sum of the Weights}}$$

where the total sample size is the total number of students for the two groups being analyzed (e.g., for the White/Hispanic comparison, the total number of White and Hispanic examinees in the sample at that grade), and the sum of the weights is the sum of the sampling weights of all the students in the sample for the two groups being analyzed. Three rescaled weights were computed for White examinees—one for the gender comparison and two for the race/ethnicity comparisons. Two rescaled overall weights were computed for the Black and Hispanic examinees—one for the gender comparison and another for the appropriate race/ethnicity comparison. The rescaled weights were used to ensure that the sum of the weights for each analysis equaled the number of students in that comparison, thus providing an accurate basis for significance testing.

In the calculation of total item scores for the matching criterion, not-reached, off-task, and omitted items were considered to be wrong responses. Polytomous items were weighted more heavily in the formation of the matching criterion, proportional to the number of score categories. For each item, calculation of the Mantel-Haenszel statistic did not include data from examinees who did not reach the item in question.

Each DIF analysis was a two-step process. In the initial phase, total item scores were formed and the calculation of DIF indices was completed. Before the second phase, the matching criterion was refined by removing all identified C or CC items, if any, from the total item score. The revised score was used in the final calculation of all DIF indices. Note that when analyzing an item classified as C or CC in the initial phase, that item score is added back into the total score for the analysis of that item only.

Following standard practice at ETS for DIF analyses conducted on final forms, all C or CC items were reviewed by a committee of trained test developers and subject-matter specialists. Such committees are charged with making judgments about whether or not the differential difficulty of an item is unfairly related to group membership. The committees assembled to review NAEP items include both ETS staff and outside members with expertise in the field. The committees carefully examine each identified item

to determine if either the language or contents would tend to make the item more difficult for an identified group of examinees. As pointed out by Zieky (1993):

It is important to realize that DIF is not a synonym for bias. The item response theory based methods, as well as the Mantel-Haenszel and standardization methods of DIF detection, will identify questions that are not measuring the same dimension(s) as the bulk of the items in the matching criterionTherefore, judgment is required to determine whether or not the difference in difficulty shown by a DIF index is unfairly related to group membership. The judgment of fairness is based on whether or not the difference in difficulty is believed to be related to the construct being measuredThe fairness of an item depends directly on the purpose for which a test is being used. For example, a science item that is differentially difficult for women may be judged to be fair in a test designed for certification of science teachers because the item measures a topic that every entry-level science teacher should know. However, that same item, with the same DIF value, may be judged to be unfair in a test of general knowledge designed for all entry-level teachers. (p. 340)

9.3.5 Scaling

Scales based on item response theory (IRT) were derived for each subject area. Three scales were created for national main reading grade 8 and grade 12 assessment data, one for each purpose for reading. Only two of these scales—Reading for Literary Experience and Reading to Gain Information—were assessed at grade 4. A single scale was created for national main writing assessment data, and one scale was created for national main civics assessment data. NAEP uses the methodology of multiple imputations (plausible values) to estimate characteristics of the scale score distributions. Chapter 12 describes in detail the theoretical underpinnings of NAEP’s scaling methods and the required estimation procedures. The basic analysis steps are outlined here.

1. Use the NAEP BILOG/PARSCALE computer program (described in Chapter 12) to estimate the parameters of the item response functions on an arbitrary provisional scale. This program uses an IRT model incorporating the two- and three-parameter logistic forms for dichotomously scored items and the generalized partial-credit form for polytomously scored items. In order to select starting values for the iterative parameter-estimation procedure for each dataset, the program is first run to convergence, imposing the condition of a fixed normal prior distribution of the scale score variable. Once these starting values are computed, the main estimation runs model examinee scale score ability as a multinomial distribution. That is, no prior assumption about the shape of the scale score distribution is made. In analyses involving more than one population, estimates of parameters are made with the overall mean and standard deviation of all subjects’ proficiencies specified to be 0 and 1, respectively.
2. Use a version of the MGROUP program (described in Chapter 12), which implements the method of Mislevy (see Chapter 10 or Mislevy, 1991) to estimate predictive scale score distributions for each respondent on an arbitrary scale, based on the item parameter estimates and the responses to cognitive items and background questions.
3. Use random draws from these predictive scale score distributions (plausible values, in NAEP terminology) for computing the statistics of interest, such as mean proficiencies for demographic groups.

4. Determine the appropriate metric for reporting the results and transform the results as needed. This includes the linking of current scales to scales from the past or the selection of the mean and variance of new scales. After scale score distributions for the scaling are transformed, composite scale score distributions are created for the reading, writing, and civics assessments.
5. Use the jackknife procedure to estimate the standard errors of the mean proficiencies for the various demographic groups.

As explained in Chapter 10, the plausible values obtained through the IRT approach are not optimal estimates of individual scale score; instead, they serve as intermediate values to be used in estimating subpopulation characteristics. Under the assumptions of the scaling models, these subpopulation estimates are statistically consistent, which would not be true of subpopulation estimates obtained by aggregating optimal estimates of individual scale score.

9.3.5.1 Scaling the Cognitive Items

The data from the national main assessment samples were scaled using IRT models. For dichotomously scored items two- and three-parameter logistic forms of the model were used, while for polytomously scored items the generalized partial-credit model form was used. These two types of items and models were combined in the NAEP scales. Item parameter estimates on a provisional scale were obtained using the NAEP BILOG/PARSCALE program. The fit of the IRT model to the observed data was examined within each scale by comparing the empirical item response functions with the theoretical curves, as described in Chapter 12. Plots of the empirical item response functions and theoretical curves were compared across assessments for items in the reading trend assessment. The DIF analyses previously described also provide information related to the model fit across subpopulations.

The national main assessments of reading, writing, and civics each have special characteristics that determine the procedures that were followed for the scaling of each subject. For reading, a key consideration was the degree of similarity between the 1998 assessment and earlier assessments in terms of the populations assessed and the characteristics of the assessment instrument used. The civics and writing scales were not linked to any previously defined scales.

The frameworks for the different subject areas dictate differences in the numbers of scales. For reading, item parameter estimation was performed separately for each of three scales defined in its framework, using data from each grade sample separately.

9.3.5.2 Generation of Plausible Values for Each Scale

After the scales were developed, plausible values were drawn from the predictive distribution of scale score values for each student (this process is called conditioning). For the writing and civics scales, plausible values were drawn separately for each grade. For the reading scale, vectors of multivariate plausible values were drawn from the joint distribution of scale score values for the assessed student. The scales within an assessment are correlated. Multivariate generation utilizes this shared variation among the scales in generating the plausible values. This procedure properly reflects the dependency between the scale proficiencies. Multivariate plausible values were computed separately for each grade. All plausible values were later rescaled to the final scale metric using appropriate linear transformations.

The variables used to calculate plausible values for a given national main assessment scale or group of scales included a broad spectrum of background, attitude, and experiential variables and composites of such variables. All standard reporting variables were included. To enhance numerical

stability for the national main assessment scales, the original background variables were standardized and transformed into a set of linearly independent variables by extracting principal components from the correlation matrix of the original contrast variables. The principal components, rather than the original variables, were used as independent variables to calculate plausible values for those scales. Details of the conditioning process and of the NAEP BGROUP and NAEP CGROUP (Thomas, 1994) computer programs that implement the process are presented in Chapter 12. The variables used in conditioning are listed in Appendix F.

9.3.5.3 Transformation to the Reporting Metric

Reading short-term trend scales were linked to previous assessment scales via common population linking procedures described in the subject-specific data analysis chapters. Essentially, the 1994 and 1998 data were calibrated together. Data from the two assessments were scaled together in the same BILOG/PARSCALE run, specifying the samples for each assessment as coming from different populations. For each scale, the mean and standard deviation of the 1994 data from this joint calibration were matched to the mean and standard deviation of the 1994 data as previously reported. This then linked the 1998 data to the previously established scale. New scales were established for the writing and civics national main assessment. Then the metrics for the newly established scales were set to have a mean of 150 and a standard deviation of 35.

The transformations were of the form

$$\theta_{target} = A \cdot \theta_{calibrated} + B$$

where

θ_{target} = scale level in terms of the system of units of the final scale used for reporting;

$\theta_{calibrated}$ = scale level in terms of the system of units of the provisional NAEP-BILOG/PARSCALE scale;

A = $SD_{target} / SD_{calibrated}$;

B = $M_{target} - A \cdot M_{calibrated}$;

SD_{target} = the estimated or selected standard deviation of the scale score distribution to be matched;

$SD_{calibrated}$ = the estimated standard deviation of the sample scale score distribution on the provisional NAEP-BILOG/PARSCALE scale;

M_{target} = the estimated or selected mean of the scale score distribution to be matched; and

$M_{calibrated}$ = the estimated mean of the sample scale score distribution on the provisional NAEP-BILOG/PARSCALE scale.

After the plausible values were linearly transformed to the new scale, any plausible value less than 0 was censored to 0. For the reading assessment, any value greater than 500 was censored to 500; for the

writing and civics assessments, any value greater than 300 was censored to 300. Fewer than 1 percent of the students in any sample were censored in this way. The final transformation coefficients for transforming each provisional scale to the final reporting scale are given in subsequent chapters.

9.3.5.4 Definition of Composites for the Multivariate Scales in Reading

In addition to the plausible values for each scale, a composite of the individual reading assessment scales was created as a measure of overall proficiency. The composite scale score was a weighted average of the plausible values of the individual scales. The weights reflected the relative importance of the scales and were provided in the framework developed by the subject-area committee. The weights are approximately proportional to the number of items in each scale at a given grade level.

9.3.5.5 Tables of Scale Score Means and Other Reported Statistics

Scale scores and trends in scale scores were reported by grade for a variety of reporting categories. Additionally, the percentages of the students within each of the reporting groups who were at or above achievement levels were reported to provide information about the distribution of achievement within each subject area. All estimates based on scale score values have reported variances or standard errors based on scale score values, including the error component due to the latency of scale score values of individual students as well as the error component due to sampling variability. These tables are part of the electronically delivered summary data tables.

9.3.6 Dimensionality Analysis

Over the years a number of studies have been conducted in order to seek answers to the question of how many dimensions underlie the various NAEP assessment instruments, and whether there is a sufficiently strong first dimension to support inferences about a composite scale in subjects such as reading. For the 1992 mathematics and reading assessments, a study was conducted (Carlson, 1993) to determine whether the increasing emphasis on extended constructed-response items that are scored polytomously has any effect on the dimensionality. It was determined that for the 1992 NAEP data, item type was not related to any of the dimensions identified.

9.3.6.1 Previous Dimensionality Analyses of NAEP Data

In an early study, the dimensionality of NAEP reading assessment data collected during the 1983–84 academic year was examined by Zwick (1986, 1987). Zwick also studied simulated data designed to mirror the NAEP reading item response data but having known dimensionality. Analysis of the simulated datasets allowed her to determine whether the BIB spiraling design artificially increases dimensionality. Zwick found substantial agreement among various statistical procedures, and that the results using BIB spiraling were similar to results for complete datasets. Overall she concluded that “it is not unreasonable to treat the data as unidimensional” (1987, p. 306).

Rock (1991) studied the dimensionality of the NAEP mathematics and science tests from the 1990 assessment using confirmatory factor analysis. His conclusion was that there was little evidence for discriminant validity except for the geometry scale at the eighth-grade level, and that “we are doing little damage in using a composite score in mathematics and science” (p. 2).

A second-order factor model was used by Muthén (1991) in a further analysis of Rock’s mathematics data, to examine subgroup differences in dimensionality. Evidence of content-specific variation within subgroups was found, but the average (across seven booklets) percentages of such

variation was very small, ranging from essentially 0 to 22, and two-thirds of these percentages were smaller than 10.

Carlson and Jirele (1992) examined 1990 NAEP mathematics data. Analyses of simulated one-dimensional data were also conducted, and the fit to these data was slightly better than that to the real NAEP data. Although there was some evidence suggesting more than one dimension in the NAEP data, the strength of the first dimension led the authors to conclude that the data “are sufficiently unidimensional to support the use of a composite scale for describing the NAEP mathematics data, but that there is evidence that two dimensions would better fit the data than one” (p. 31).

Carlson (1993) studied the dimensionality of the 1992 mathematics and reading assessments. The relative sizes of fit statistics for simulated as compared to actual data suggested that lack of fit may be more due to the BIB spiraling design of NAEP than the number of dimensions fitted. Kaplan (1995) similarly found that the chi-squared goodness of fit statistic in the maximum likelihood factor analysis model was inflated when data were generated using a BIB design. The sizes of the fit statistics for incomplete simulation conditions (a BIB design as in the actual NAEP assessment) were more like those of the real data than were those of the case of simulation of a complete data matrix. Consistent with findings of Zwick (1986, 1987), however, the incomplete design for data collection used in NAEP does not appear to be artificially inflating the number of dimensions identified using these procedures.

9.3.7 Drawing Inferences from the Results

Drawing correct inferences from the results of the assessments depends on several components. First, the hypothesis of no difference between groups must be tested statistically. For the 1998 assessment, the use of *t*-tests was introduced for most comparisons. These tests are more appropriate than *z*-tests based on normal distribution approximations when the statistics that are being compared are from distributions with thicker tails than those from the normal distribution. The statistical significance tests used in NAEP are described in detail in Chapter 13.

A second component contributing to drawing correct inferences is the way in which error rates are controlled when multiple comparisons are made. If we wish to make a number of comparisons in the same analysis, say White students versus Black, Hispanic, Asian/Pacific Island, and American Indian students, the probability of finding “significance” by chance for at least one comparison increases with the family size or number of comparisons. By the Bonferroni inequality, for a family size of 4, for example, the probability of a false positive (Type I error) using $\alpha = 0.05$ is less than or equal to $4 \times 0.05 = 0.20$, larger than most decision makers would accept.

One general method for controlling error rates in multiple comparisons is based on the Bonferroni inequality. In this method, the Bonferroni inequality is applied and α is divided by the family size, n . Now $\alpha = .05/4 = .0125$, and using α , the combined probability of one or more errors in the four comparisons remains controlled at less than or equal to .05. Note that dividing the probability by n is not the same as multiplying the critical value or the confidence band by n . Indeed, in moving from a family size of 1 to 4, we increase the critical value only from 1.960 to 2.498, a 27.4 percent increase. Doubling the family size again, to 8, increases the critical value to 2.735, an additional 9.5 percent increase. To double the initial critical value to 3.92, the family size would have to be increased to 564.

The power of the tests thus depends on the number of comparisons planned. There may be cases for which, before the data are seen, it is determined that only certain comparisons will be conducted. As an example, with the five groups above, interest might lie only in comparing the first group with each of the others (family size 4), rather than comparing all possible pairs of groups (family size 10). This means

that some possibly significant differences will not be found or discussed, but the planned comparisons will have greater power to identify real differences when they occur.

In 1998, a different criterion was used to increase the power of statistical tests in NAEP. Unlike other multiple-comparison procedures (e.g., the Bonferroni procedure) that control the familywise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the false discovery rate (FDR) controls the expected proportion of falsely rejected hypotheses. So, if an α of .05 is selected, about 95 percent of the hypothesis tests made rejected or accepted the hypothesis correctly, while about 5 percent of the hypothesis tests made rejected or accepted the hypothesis incorrectly. Familywise procedures are considered conservative for large families of comparisons. Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than other procedures (Williams, Jones, & Tukey, 1999). The FDR procedure used in NAEP has been described by Benjamini and Hochberg (1994). These methods for controlling error rates in multiple comparisons are described in Chapter 13.

A third component contributing to drawing correct inferences is limiting comparisons to those for which there are adequate data. In NAEP reports and data summaries, estimates of quantities such as composite and content area scale score means, percentages of students at or above the achievement levels, and percentages of students indicating particular levels of background variables (as measured in the student, teacher, and school questionnaires) are reported for the total population as well as for key subgroups determined by the background variables. In some cases, sample sizes were not large enough to permit accurate estimation of scale score or background variable results for one or more of the categories of these variables.

For results to be reported for any subgroup in NAEP, a minimum sample size of 62 is required. This number was arrived at by determining the sample size required to detect an effect size of 0.5 with a probability of .8 or greater. The effect size of 0.5 pertains to the “true” difference in mean scale score between the subgroup in question and the total population, divided by the standard deviation of scale score in the total population. In addition, subgroup members must represent at least five primary sampling units (PSUs).

A fourth component contributing to drawing correct inferences is limiting comparisons to those comparing statistics with standard errors that are estimated well. Standard errors of mean proficiencies, proportions, and percentiles play an important role in interpreting subgroup results and comparing the performances of two or more subgroups. The jackknife standard errors reported by NAEP are statistics whose quality depends on certain features of the sample from which the estimate is obtained. In certain cases, typically when the number of students upon which the standard error is based is small or when this group of students all come from a small number of participating schools, the mean squared error associated with the estimated standard errors may be quite large. In the summary reports, estimated standard errors subject to large mean squared errors are followed by the symbol "!".

The magnitude of the mean squared error associated with an estimated standard error for the mean or proportion of a group depends on the coefficient of variation (CV) of the estimated size of the population group, denoted as N . The coefficient of variation is estimated by:

$$CV(\hat{N}) = \frac{SE(\hat{N})}{\hat{N}}$$

where \hat{N} is a point estimate of N and $SE(\hat{N})$ is the jackknife standard error of \hat{N} .

Experience with previous NAEP assessments suggests that when this coefficient exceeds 0.2, the mean squared error of the estimated standard errors of means and proportions based on samples for this

group may be quite large. Therefore, the standard errors of means and proportions for all subgroups for which the coefficient of variation of the population size exceeds 0.2 are followed by "!" in the tables of all summary reports. These standard errors, and any confidence intervals or significance tests involving them, should be interpreted with caution. (Further discussion of this issue can be found in Johnson & Rust, 1993.)

A final component contributing to drawing correct inferences pertains to comparisons involving extreme proportions. When proportions are close to zero or one, their distributions differ greatly from *t*- or *z*-distributions. For this reason, hypothesis tests of the sort used by NAEP are not appropriate in these cases. Under these conditions, no test is made. Chapter 13 includes the specific definition of extreme proportion used in the analysis of 1998 data.

9.4 OVERVIEW OF CHAPTERS 10 THROUGH 24

The remaining chapters of this report are as follows:

Chapters 10 and 11: The 1998 national assessment used a stratified multistage probability sampling design that provided for sampling certain subpopulations at higher rates (see Chapters 3 and 4). Because probabilities of selection are not the same for all assessed students, sampling weights must be used in the analysis of NAEP data. Also, in NAEP's complex sample, observations are not independent. As a result, conventional formulas for estimating the sampling variance of statistics are inappropriate. Chapters 10 and 11 describe the weighting procedures and methods for estimating sampling variance that are necessitated by NAEP's sample design. Further detail on sampling and weighting procedures is provided in the *NAEP 1994 Sampling and Weighting Report* (Wallace & Rust, 1996), published by Westat, the NAEP contractor in charge of sampling.

Chapter 12: A major NAEP innovation introduced by ETS is the reporting of subject-area results in terms of IRT-based scales. Scaling methods can be used to summarize results even when students answer different subsets of items. For purposes of summarizing item responses, NAEP developed a scaling technique that has its roots in IRT and in the theories of imputation of missing data. Chapter 12 describes this scaling technique, the underlying theory, and the application of these methods to 1998 NAEP data. The final section of Chapter 12 gives an overview of the NAEP scales that were developed for the 1998 assessment.

Chapter 13: The 1998 assessment analyses included changes in the methods, procedures, and conventions used in making group comparisons. Chapter 13 highlights these changes and provides details about which results were reported.

Chapter 14: The 1998 reading assessment was based on a framework developed by the National Assessment Governing Board for the 1992 reading assessment. This framework was used in the 1994 and 1998 assessments. Chapter 14 discusses the framework and assessment instruments used in the 1998 assessment.

Chapters 15, 16, and 17 describe analyses of the reading data for national and state assessments. This analysis included a study of the cognitive variables and student background variables. At grades 4 and 8, background information and data on instructional methods were collected from teachers, and the relation of these variables to reading scale scores was examined. The reading results appear in the *NAEP 1998 Reading Report Card for the Nation and the States* (Donahue et al., 1999).

Chapter 18: The 1998 writing assessment was based on a new framework developed by the National Assessment Governing Board for the 1998 assessment. Chapter 18 discusses the framework and assessment instruments used in the 1998 assessment.

Chapters 19, 20, and 21 describe analyses of the writing data for national and state assessments. This analysis included a study of the cognitive variables and student background variables. At grade 8, background information and data on instructional methods were collected from teachers and the relation of these variables to writing data was examined. The writing results appear in the *NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald et al., 1999).

Chapter 22: The 1998 civics assessment was based on a new framework developed by the National Assessment Governing Board for the 1998 assessment. Chapter 22 discusses the framework and assessment instruments used in the 1998 assessment.

Chapters 23 and 24 describe analyses of the civics assessment. This analysis included a study of the cognitive variables and student background variables. At grades 4 and 8, background information and data on instructional methods were collected from teachers and the relation of these variables to civics scale scores was examined. The civics results appear in the *NAEP 1998 Civics Report Card for the Nation* (Lutkus et al., 1999).

Chapter 10

WEIGHTING PROCEDURES AND ESTIMATION OF SAMPLING VARIANCE FOR THE NATIONAL ASSESSMENT¹

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10.1 INTRODUCTION

As in previous assessments, the 1998 national assessment used a complex sample design with the goal of securing a sample from which estimates of population and subpopulation characteristics could be obtained with reasonably high precision (as measured by low sampling variability). At the same time, it was necessary that the sample be economically and practically feasible to obtain. The resulting sample had certain properties that had to be taken into account to ensure valid analyses of the data from the assessment.

The 1998 NAEP sample was obtained through a stratified multistage probability sampling design that included provisions for sampling certain subpopulations at higher rates (see Chapter 3). To account for the differential probabilities of selection, and to allow for adjustments for nonresponse, each student was assigned a sampling weight. Section 10.2 discusses the procedures used to derive these sampling weights.

Section 10.3 discusses other weighting procedures in the NAEP samples. These procedures include generating modular weights, which would allow analysts to compare results between sample types. National linking (NL)² weights were generated so that national and state-by-state assessments could be equated for national and state results to be reported on a common scale. School weights were created so that school-level data could be analyzed. Also, reporting weights for samples with accommodations were processed for possible use in 2002 when reporting trend from 1998. Section 10.4 discusses the potential bias due to nonresponse.

Another consequence of the NAEP sample design is its effect on the estimation of sampling variability. Because of the effects of cluster selection (cluster of elements: students within schools, schools within primary sampling units) and because of the effects of certain adjustments to the sampling weights (nonresponse adjustment and poststratification), observations made on different students cannot be assumed to be independent of one another. In particular, as a result of clustering, ordinary formulas for the estimation of the variance of sample statistics based on assumptions of independence will tend to underestimate the true sampling variability. Section 10.5 discusses the jackknife technique used by NAEP to estimate sampling variability.

¹ Keith F. Rust and Tom Krenzke were responsible for the design and implementation of the weighting process for the 1998 NAEP national assessment. Jiahe Qian, with the assistance of Bruce Kaplan and in consultation with Eugene G. Johnson, was responsible for the planning, specification, and coordination of the national weighting at ETS.

² Note that in previous NAEP state assessments, the weights for national linking samples were called the state aggregate comparison, or SAC, weights. Many people thought this was easy to confuse with state weights, so the term 'national linking' will be used in this report.

10.2 WEIGHTING PROCEDURES FOR ASSESSED AND EXCLUDED STUDENTS IN THE NATIONAL SAMPLES

Since the sample design determines the derivation of the sampling weights and the estimation of sampling variability, it will be helpful to note the key features of the 1998 national sample design. A description of the design appears in the first four sections of this report.

The 1998 sample was a multistage probability sample consisting of four stages. The first stage of selection, the primary sampling units (PSUs), consisted of counties or groups of counties. The second stage of selection consisted of elementary and secondary schools. The assignment of sessions and sample types to sampled schools (see Chapter 3) comprised the third stage of sampling, and the fourth stage involved the selection of students within schools and their assignment to sessions.

The probabilities of selection of the first-stage sampling units were proportional to measures of their size, while the probabilities for subsequent stages of selection were such that the overall probabilities of selection of students were approximately uniform, with exceptions for certain subpopulations that were oversampled by design. Schools with relatively high concentrations of Black students, Hispanic students, or both, were deliberately sampled at a higher than normal rate to obtain larger samples of respondents from those subpopulations, in order to increase the precision in the estimation of the characteristics of these subpopulations. Nonpublic-school students were sampled at three times the normal rate, again to increase the precision of estimates for this population subgroup. For all assessment components, students from schools with smaller numbers of eligible students received lower probabilities of selection, as a means of enhancing the cost efficiency of the sample.

The 1998 national assessment includes three student cohorts: students in grades 4, 8, and 12. The national assessment of all grades was conducted in the spring of 1998 to provide a cross-sectional view of students' abilities in reading, writing, and civics.

The full 1998 national assessment thus includes a number of different samples from several populations. Each of these samples has its own set of weights that are to be used to produce estimates of the characteristics of the population addressed by the sample (the target population). Each sample has an additional set of weights to accommodate the reporting requirements. The various samples and their target populations are as follows. The target population for each of these samples (one for each grade) consisted of all students who were in the specified grade and were deemed assessable by their school. There were three distinct session types at each grade: writing/civics, reading, and civics special trend. Each session type was conducted as one or more distinct sessions within a school. Administration of each session type was always conducted separately from other session types. Within the writing/civics sessions, students in grade 4 received either a 25-minute writing booklet or a civics booklet, while in grades 8 and 12 students received a 25-minute writing booklet, a 50-minute writing booklet, or a civics booklet.

To facilitate analyses, two kinds of weights were produced. "Reporting weights" were produced separately by grade and assessment type for analyses of the reporting samples that were defined for each assessment. Several of the reporting samples included students from multiple sample types. "Modular weights," as discussed in Section 10.3.1, were produced separately by grade and sample type for the reading assessment. They are applied for analyses involving any one sample type, or for comparing one sample type with another. Thus, across grades, session types, and sample types, there were 14 sets of reporting weights, and there were 6 sets of modular weights for students in reading assessments.

10.2.1 Base Weights

As indicated earlier, to enhance the precision of estimates of characteristics of these oversampled subgroups, NAEP deliberately oversampled certain subpopulations to obtain larger samples of respondents from those subgroups by using differential sampling rates. Because of the oversampling public schools with high concentrations of Black and/or Hispanic students and the oversampling of nonpublic schools, these subpopulations are overrepresented. As a result of oversampling students, subpopulations to Black and/or Hispanic students from public schools with low concentrations of Black and/or Hispanics, and corresponding to SD/LEP students in schools assigned reading sessions, are also overrepresented in the sample. Lower sampling rates were introduced also for very small schools (those schools with only 1 to 19 eligible students). This reduced level of sampling from small schools was undertaken in a near optimal manner as a means of reducing variances per unit of cost (since it is relatively costly to administer assessments in these small schools). Appropriate estimation of population characteristics must take disproportionate representation into account. This is accomplished by assigning a weight to each respondent, where the weights approximately account for the sample design and reflect the appropriate proportional representation of the various types of individuals in the population.

Two sets of weights were computed for the 1998 samples. “Modular weights” were computed for analyses involving students of reading assessments in one sample type, or for comparing results between sample types. Each reading assessment type, by grade and sample type, weights up separately to the target population. “Reporting weights” were computed for analyses of the reporting samples defined in Table 10-1. The reading reporting samples include students from more than one sample type. For reporting samples that include only one sample type (i.e., writing/civics and civics special trend), the reporting weights are identical to the modular weights. The steps for computing these two sets of weights are identical, up to and including the step of “trimming” the weights. The trimmed weights were poststratified separately by sample type to create the modular weights. In a parallel procedure, the trimmed weights were scaled back using a “reporting factor” so that the sample types included in each reporting sample, when combined, would weight up to the target population. The resulting weights were poststratified (but not separately by sample type) to create the reporting weights.

Table 10-1
Reporting Samples for 1998 National Assessments

Subject	Grade Assessed	Reporting Samples*
Civics	4, 8, 12	A3+B3
Civics Special Trend	4, 8, 12	A3+B3
Reading	4, 8, 12	A2+A3+B2
25-Minute Writing	4, 8, 12	A3+B3

* **A** indicates assessed non SD/LEP students; **B** indicates assessed SD/LEP students; and 2 or 3 indicates the sample type.

The weighting procedures for 1998 included computing the student’s base weight, the reciprocal of the probability that the student was selected for a particular subject type. Such weights are those appropriate for deriving estimates from probability samples via the standard Horvitz-Thompson estimator (see Cochran, 1977). These base weights were adjusted for nonresponse and then subjected to a trimming algorithm to reduce a few excessively large weights. The weights were further adjusted by a student-level poststratification procedure to reduce the sampling error. The poststratification was performed by adjusting the weights of the sampled students so that the resulting estimates of the total number of students in a set of specified subgroups of the population corresponded to population totals, which were based on information from the Current Population Survey and U.S. Census Bureau estimates of the

population. The subpopulations were defined in terms of race, ethnicity, geographic region, grade, and age relative to grade. The distribution of the various weighting factors is presented in Westat's report entitled *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

The base weight assigned to a student is the reciprocal of the probability that the student was selected for a particular assessment. That probability is the product of six factors:

1. The probability that the PSU was selected
2. The probability that a Catholic, religious-affiliated, or other nonpublic school was selected for the PSS file
3. The conditional probability, given the PSU, that the school was selected
4. The conditional probability, given the sample of schools in a PSU, that the school was allocated to the specified session type
5. The conditional probability, given the sample of schools in a PSU, that the sample type was assigned to the school
6. The conditional probability, given the school, that the student was selected for the specified subject type

Thus, the base weight for a student may be expressed as the product

$$W_B = PSUWGT_M \bullet QSCHWT \bullet SCH_WT \bullet STYWT \bullet SA_WT \bullet STUSA_WT$$

where *PSUWGT_M*, *QSCHWT*, *SCH_WT*, *STYWT*, *SA_WT*, and *STUSA_WT* are, respectively, the reciprocals of the preceding probabilities.

Variations across the various 1998 assessments in probabilities of selection, and consequently of weights, were introduced by design, either to increase the effectiveness of the sample in achieving its goals of reporting for various subpopulations, or to achieve increased efficiency per unit of cost.

The PSU weight, *PSUWGT_M*, is the reciprocal of the probability of selection for the PSU. Of the 94 PSUs selected, 22 were certainty PSUs and have a PSU weight of 1.0. For the remaining 72 PSUs, the probability of selection was calculated to account for the initial selection of one PSU per stratum.

The PSS weight, *QSCHWT*, is the reciprocal of the probability of selection of the Catholic, religious-affiliated, and other nonpublic schools from the PSS area frame. *QSCHWT*= 1 for schools on the PSS list frame. See Section 3.2.4.1 for more information about the PSS list and area frames.

The school weight, *SCH_WT*, is the reciprocal of the probability of selection of the school conditional on the PSU.

The session allocation weight, *SA_WT*, is the reciprocal of the probability that the particular session was allocated to the school. This is a function of the session type and the number of sessions allocated to the school. Session allocation weights were calculated separately for each session type. The values for the session allocation weights are summarized in Table 10-2. The session allocation weights were adjusted for smaller-than-expected schools to account for one or more session types that were

dropped. The adjustment factor was computed as the number of sessions assigned divided by the number of retained sessions assigned for the session type.

Table 10-2
Session Allocation Weights Used in the 1998 National Assessment

Grade	Writing/Civics		Reading		Civics Special Trend	
	Session Allocation Weight	Number of Sessions Assigned	Session Allocation Weight	Number of Sessions Assigned	Session Allocation Weight	Number of Sessions Assigned
4	18/13	1	18/4	1	18	1
	1	2	18/8	2	18/2	2
	1	3	18/12	3	18/3	3
	1	4	18/16	4	18/4	4
8	47/34	1	47/11	1	47/2	1
	1	2	47/22	2	47/4	2
	1	3	47/33	3	47/6	3
	1	4	47/44	4	47/8	4
	1	5	1	5	47/10	5
12	49/34	1	49/13	1	49/2	1
	1	2	49/26	2	49/4	2
	1	3	49/39	3	49/6	3
	1	4	49/45	4	49/8	4
	1	5	49/47	5	49/10	5

The sample type weight, STYWT, is the reciprocal of the probability that the sample type was assigned to the school. For reading, the weight is 2, and for other sessions the weight was set to 1.

Cooperating substitute schools received the values of the following weighting components from the original sampled school that it replaced: *PSUWGT_M*, *QSCHWT*, *SCH_WT*, *SA_WT*, *STYWT*.

For assessed students, the student weight, STUSA_WT, is the reciprocal of the probability that the student was selected for the particular session to which he or she was assigned. This probability is the product of the within-school sampling rate; the proportion of the relevant eligible students assigned to the particular session type within the school, as prescribed by the sampling allocation factor; the proportion of students in the session given a subject-specific assessment booklet (see Table 10-3 for the subject factors); and a factor that adjusts for students in year-round schools that are not in school at the time of assessment. Special attention was given to the writing sample allocation factors for accommodated SD/LEP students and nonaccommodated students. The SD/LEP students in 50-minute writing that were accommodated were given 25-minute writing booklets. Therefore, the accommodated students have a higher chance of being assigned the 25-minute writing booklet than the nonaccommodated students. A special poststratification procedure was done for the 50-minute writing sample, as described in Section 10.2.5.1.

Excluded students were weighted with assessed students for each assessment. This was done because the exclusion criteria did not depend on session type. For excluded students, STUSA_WT is computed the same way as assessed and absent students.

Table 10-3
1998 National Assessment Writing and Civics Sample Allocation

Subject	Grade 4	Grade 8	Grade 12
25-Minute Writing Nonaccommodated	13/10	17/10	17/10
25-Minute Writing Accommodated	13/10	17/13	17/13
50-Minute Writing	N/A	17/3	17/3
Civics	13/3	17/4	17/4

10.2.2 Adjustment of the Base Weights for Nonresponse

The base weight for a student was adjusted by two nonresponse factors: SF_WT, to adjust for noncooperating schools and schools that did not conduct all of their assigned sessions (i.e., a session nonresponse); and STUNRADJ, to adjust for students who were invited to the assessment but did not appear either in the scheduled or a makeup session. Thus the nonresponse adjusted weight for a student was of the form:

$$STUAWT = PSUWGT_M \cdot QSCHWT \cdot SCH_WT \cdot SA_WT \cdot STYWT \cdot STUSA_WT \cdot SF_WT \cdot STUNRADJ$$

The nonresponse adjustment factors were computed as described below.

10.2.2.1 Session Nonresponse Adjustment (SES NRF)

Sessions were assigned to schools before cooperation status was final. The session nonresponse adjustment was intended to compensate for session type nonresponse due to refusing schools or individual session types not conducted. The first three digits of PSU stratum, called subuniverse (formed by crossing the PSU major stratum and the first socioeconomic characteristic used to define the final PSU stratum; see Chapter 3 for more detail) were used in calculating nonresponse adjustments. The adjustment factors were computed separately within classes formed by subuniverse within sample type for reading, and by subuniverse for the other assessment types. Occasionally, additional collapsing of classes was necessary to improve the stability of the adjustment factors, especially for the smaller assessment components. Most classes needing collapsing contained small numbers of cooperating schools. Occasionally, classes with low-response rates were collapsed.

In subuniverse s in session type h , the session nonresponse adjustment factor SF_WT_{hs} was given by

$$SF_WT_{hs} = \frac{\sum_{B_{hs}} PSUWGT_M_i \cdot QSCHWT_i \cdot SCH_WT_i \cdot SA_WT_{hi} \cdot STYWT_{hi} \cdot G_i}{\sum_{C_{hs}} PSUWGT_M_i \cdot QSCHWT_i \cdot SCH_WT_i \cdot SA_WT_{hi} \cdot STYWT_{hi} \cdot G_i}$$

where

$PSUWGT_M_i$ = the PSU weight for the PSU containing school i ,

$QSCHWT_i$ = the PSS school weight for school i ,

SCH_WT_i	=	the school weight for school i ,
SA_WT_{hi}	=	the session allocation weight for session type h in school i ,
$STYWT_i$	=	the sample type weight for school i ,
G_i	=	the estimated number of grade-eligible students in school i (the values of G_i were based on QED or PSS data or updated grade enrollment values from field operations),
set B_{hs}	=	consists of all in-scope originally sampled schools allocated to session type h in subuniverse s (excluding substitutes), and
set C_{hs}	=	consists of all schools allocated to session type h in subuniverse s that ultimately participated (including substitutes).

It should be noted that the nonresponse adjustments assume that nonresponse occurs at random within the categories within which adjustments are made (see Little & Rubin, 1987). Some degree of bias could result to the extent that this assumption is false. It should also be noted that the adjustment accounts for the difference between the substitute's estimated grade enrollment and its corresponding original school's estimated grade enrollment. For the state assessments, a separate weighting factor is used to account for the difference in estimated grade enrollments (see Section 11.2.4).

10.2.2.2 Student Nonresponse Adjustment (STUNRADJ)

Student nonresponse adjustment factors were computed separately for each subject type. The adjustment classes were based on sample type (for reading only), subuniverse, modal age status, and race class (White or Asian/Pacific Islander, other). In some cases, two or more nonresponse classes were collapsed into one to improve the stability of the adjustment factors. For each class c in subject type k , the student nonresponse adjustment factor $STUNRADJ_{kc}$ is computed by

$$STUNRADJ_{kc} = \frac{\sum_{A_{kc}} PSUWGT_M_j \cdot QSCHWT_j \cdot SCH_WT_j \cdot SA_WT_{hj} \cdot STYWT_{hj} \cdot SF_WT_{hj} \cdot STUSA_WT_{kj}}{\sum_{B_{kc}} PSUWGT_M_j \cdot QSCHWT_j \cdot SCH_WT_j \cdot SA_WT_{hj} \cdot STYWT_{hj} \cdot SF_WT_{hj} \cdot STUSA_WT_{kj}}$$

where,

$PSUWGT_M_j$	=	the PSU weight for the PSU containing student j ,
$QSCHWT_j$	=	the PSS school weight for school containing student j ,
SCH_WT_j	=	the school weight for the school containing student j ,
SA_WT_{hj}	=	the session allocation weight for the school containing student j in session type h ,
$STYWT_{hj}$	=	the sample type weight for the school containing student j in session type h ,

SF_WT_{hj}	=	the session nonresponse adjustment factor for the school containing student j in session type h ,
$STUSA_WT_{hj}$	=	the within-school student weight for student j in subject type k ,
Set A_{kc}	=	consists of the students in class c who were sampled for subject type k and not excluded, and
Set B_{kc}	=	consists of the students in class c who were assessed in subject type k .

Excluded students received nonresponse adjustments of 1.0.

10.2.3 Variation in Weights

As mentioned earlier, the basic sampling design was to select students with uniform selection probability except for planned oversampling in certain types of schools to improve estimates for certain subgroups. However, additional variation in weights was caused by a number of factors. Variation arose from undersampling schools with fewer than six expected students eligible for the grade category. Variation also arose from limiting the number of students selected from large schools. Inaccurate school measures of size also contributed to variability. When the measures of size were off by more than 20 percent, within-school sampling intervals were changed in order to meet the target sample size in the school. In these cases the self-weighting sample design was abandoned in order to meet the target sample size. In addition, the process of session assignment added variability to the weights. The number of sessions was assigned to the school first, and then specific session types were assigned. Thus, the number of sessions of any one type assigned to a school was a random variable. More oversampling within schools, as discussed in Chapter 3, than in 1996 may have caused an increased variation in weights. Finally, adjustment for nonresponse at the school and student levels added to the variation in weights.

Such variability in weights contributed to the variance of overall estimates from the survey by approximately a factor of $F = 1 + V_w^2$, where V_w^2 denotes the coefficient of variation of the student weights. The calculated factors are displayed in Table 10-4.

By design, the use of poststratification factors, to be discussed in Section 10.2.5, also added to weight variation. However, poststratification presumably reduced the variance of overall estimates by reducing the variability in the relative contribution to the overall estimates of subclasses that respond differently.

Table 10-4
*Value of Factor F for Sample Subjects
 Used in the 1998 National Assessment*

Grade	Subject	F
4	Reading	1.41
	25-Minute Writing	1.41
	Civics	1.41
	Civics Special Trend	1.25
8	Reading	1.42
	25-Minute Writing	1.37
	50-Minute Writing	1.36
	Civics	1.38
	Civics Special Trend	1.31
12	Reading	1.45
	25-Minute Writing	1.34
	50-Minute Writing	1.34
	Civics	1.36
	Civics Special Trend	1.32

10.2.3.1 Trimming the Weights for Outliers

In a number of cases, students were assigned relatively large weights³. One cause of large weights was underestimation of the number of eligible students in some schools, leading to inappropriately low probabilities of selection for those schools. A second major cause is the presence of large schools (high schools in particular) in PSUs with small selection probabilities. In such cases, the maximum permissible within-school sampling rate (determined by the maximum sample size allowed per school—see Chapter 3) could well be smaller than the desired overall within-PSU sampling rate for students. Large weights arose also because very small schools were, by design, sampled with low probabilities. Other large weights arose as the result of high levels of nonresponse coupled with low to moderate probabilities of selection, and the compounding of nonresponse adjustments at various levels.

Students with notably large weights have an unusually large impact on estimates such as weighted means. As discussed in the previous section, the variability in weights contributes to the variance of an overall estimate by an approximate factor $(1 + V_w^2)$, where V_w is the coefficient of variation of the weights. An occasional unusually large weight is likely to produce large sampling variances of the statistics of interest, especially when the large weights are associated with students with atypical performance characteristics.

To reduce the effect of large contributions to variance from a small set of sample schools, the weights of such schools were reduced, that is, trimmed. The trimming procedure introduces a bias but is expected to reduce the mean square error of sample estimates.

³ Trimming of small weights was not an issue in national and state NAEP assessments. The distribution of weights for NAEP assessment samples is usually positively skewed. The size of the student groups with relatively small weights is usually relatively large. Thus small weights are usually not outliers and would not contribute to a large coefficient of variation of weights.

The trimming algorithm was identical to that used since 1996 and had the effect, approximately, of trimming the weight of any school that contributed more than a specified proportion, θ , to the estimated variance of the estimated number of students eligible for assessment. The details of the algorithm of trimming weights are given in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

The trimming procedure was done separately within sample type for reading, and overall for 25-minute writing, 50-minute writing, civics, and civics special trend. The number of schools where weights were trimmed was no more than 13 in any one assessment. The most extreme trimming factors applied were of the order of 0.41; trimming affects the weights of only a very small proportion of the assessed and excluded students.

Table 10-5 shows the distributions of eligible students based on the trimmed weights of assessed students for the 25-minute writing samples for each grade. The distributions are similar to those before trimming shown later in the section. To the extent that the characteristics in the table are related to student performance on the 25-minute writing assessment, there is a small bias introduced in the assessment by trimming.

Table 10-5
Distribution of Populations of Eligible Students Based on Trimmed Weights of Assessed Students in Participating Schools, 1998 National 25-Minute Writing Samples

Population	Grade 4	Grade 8	Grade 12
Total Population	3,430,090	3,440,089	2,533,413
Age Category			
At modal age or younger	63.8	59.4	64.1
Older than modal age	36.2	40.6	35.9
Race/Ethnicity Category			
White	58.9	62.1	67.6
Black	13.8	13.1	11.3
Hispanic	20.1	18.5	13.7
Other	7.2	6.4	7.4
Gender*			
Male	50.6	50.0	47.9
Female	49.4	50.0	52.0
SD			
Yes	7.5	7.0	4.3
No	92.5	93.0	95.7
LEP			
Yes	3.5	2.7	2.2
No	96.5	97.3	97.8
SD, LEP			
SD yes, LEP yes	0.2	0.3	0.1
SD yes, LEP no	7.3	6.8	4.2
SD no, LEP yes	3.3	2.5	2.1
SD no, LEP no	89.2	90.5	93.6

* For a very small percentage of students at grades 4, 8, and 12, gender is unknown.

10.2.4 Reporting Factors

Each set of trimmed weights for a given sample type in the reading assessment sums to the target population. Reporting factors were assigned to students in order to scale back the trimmed weights so that final student (reporting) weights within each reporting sample (which may combine students from different sample types) sum to the target population. The reporting factors assigned to students are specific to the reporting samples defined in Table 10-1. Each assessed and excluded student in the reporting sample for reading assessment received a reporting factor as shown in Table 10-6. Students that were assessed or excluded in 25-minute writing, 50-minute writing, civics, and civics special trend, were assigned a reporting factor equal to 1.0, since all students are part of the reporting sample.

Table 10-6
1998 National Reading Assessment
Reporting Factors for Assessed and Excluded Students

Sample Type	Non SD/LEP Students	SD/LEP Students
2	0.5	1
3	0.5	—

10.2.5 Poststratification

As in most sample surveys, the respondent weights are random variables that are subject to sampling variability. Even if there were no nonresponse, the respondent weights would at best provide unbiased estimates of the various subgroup proportions. However, since unbiasedness refers to average performance over a conceptually infinite number of replications of the sampling, it is unlikely that any given estimate, based on the achieved sample, will exactly equal the population value. Furthermore, the respondent weights have been adjusted for nonresponse and a few extreme weights have been reduced in size.

To reduce the mean squared error of estimates using the sampling weights, these weights were further adjusted so that estimated population totals for a number of specified subgroups of the population, based on the sum of weights of students of the specified type, were the same as presumably better estimates based on composites of estimates from the 1995 and 1996 Current Population Survey and 1997 population projections made by the U.S. Census Bureau. For details of the method used to derive these independent estimates, see Appendix C in the *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

This adjustment, called poststratification, is intended especially to reduce the mean squared error of estimates relating to student populations that span several subgroups of the population, and thus also to reduce the variance of measures of changes over time for such student populations.

The poststratification in 1998 was done for all subjects and grades. Within each grade and assessment type group, poststratification adjustment cells were defined in terms of race, ethnicity, and Census region as shown in Tables 10-7. Note that NAEP region was used in years prior to 1996 instead of Census region. This change was made because the data from the Current Population Survey and Census Projections are more reliable for Census regions than for NAEP regions.

These subgroups were used as adjustment cells at grade 12. For grades 4 and 8, each of the seven subgroups was further divided into two eligibility classes: of modal age and not of modal age.

Table 10-7
*Major Subgroups for Poststratification
in the 1998 National Assessment*

Race	Ethnicity	Census Region
Black	Not Hispanic	All
Any	Hispanic	All
Other	Not Hispanic	All
White	Not Hispanic	Northeast
White	Not Hispanic	Midwest
White	Not Hispanic	South
White	Not Hispanic	West

The procedure used at grade 12 was adopted because the independent estimates of the numbers of students in the population did not provide consistent data on the numbers of twelfth-grade students by age. Specifically, the counts of twelfth-grade students age 18 and older are not reliable because they include adult education students. This procedure has been used since 1988. (See Rust, Bethel, Burke, & Hansen, 1990, and Rust, Burke, & Fahimi, 1992, for further details.)

Thus, there were 7 or 14 cells for poststratification. The poststratified weight for each student within a particular cell was the student's base weight, with adjustments for nonresponse and trimming, and the reporting factor from Section 10.2.4, times a poststratification factor. For each cell, the poststratification factor is a ratio whose denominator is the sum of the weights (after adjustments for nonresponse and trimming) of assessed and excluded students, and whose numerator is an adjusted estimate, based on more reliable data, of the total number of students in the cell. The poststratification factor for student j in subject type k and poststratification adjustment class c is given by

$$RPTPS_{-}AD_{kc} = \frac{TOTAL_c}{\sum_{C_{kc}} W_{Bj} \cdot SF_{-}WT_j \cdot STUNRADJ_j \cdot TRIMFCTR_j \cdot RPT_{-}FCTR_j}$$

where

- W_{Bj} = the base weight for student j (see Section 10.2.1);
- $TOTAL_c$ = the total number of grade-eligible students in class c , from the October 1995 and 1996 Current Population Surveys and 1997 population projections;
- $SF_{-}WT_j$ = the session nonresponse adjustment factor for the school containing student j in subject type k ;
- $STUNRADJ_j$ = the student nonresponse adjustment for student j ;
- $TRIMFCTR_j$ = the trimming factor for student j ;
- $RPT_{-}FCTR_j$ = the reporting factor for student j ;
- Set C_{kc} = consists of the students in class c who were assessed in subject type k , except those at grade 12 who were age 18 or older.

The major subgroups for poststratification in 1998 assessments are shown in Tables 10-7. The poststratification factors can be found in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

10.2.5.1 The 50-Minute Writing Session

The accommodated SD/LEP students sampled in the 50-minute writing session were given a 25-minute writing booklet. Therefore, the set of assessed 50-minute writing students did not contain accommodated students. To allow for comparisons between nonaccommodated students assessed in 25-minute writing to students (all nonaccommodated) in the 50-minute writing session, a special poststratification procedure was used for the weighting of students assessed in the 50-minute writing session. The poststratification adjustment factors for the 50-minute writing session were computed using the set of accommodated students in 25-minute writing, along with the set of students assessed in the 50-minute writing session. After poststratification, the estimated nonaccommodated universe sizes for grade 8 25-minute and 50-minute writing sessions were 3,572,375 and 3,570,306, respectively. For grade 12, the estimated nonaccommodated universe sizes for grade 12 25-minute and 50-minute writing sessions were 3,139,073 and 3,172,348, respectively.

10.2.6 Final Student Reporting Weights

NAEP estimates of student characteristics are based on final student weights, that is, the weight resulting after adjusting the student base weight for nonresponse, trimming, reporting sample factor, and poststratification. The student final weight, FSTUWT, is given by

$$FSTUWT = STUAWT \cdot TRIMFCTR \cdot RPT_FCTR \cdot PSFCTR$$

where

STUAWT = nonresponse adjusted student base weight, (as defined in Section 10.2.2),

TRIMFCTR = trimming factor (as discussed in Section 10.2.3.1),

RPT_FCTR = reporting sample factor (as defined in Section 10.2.4), and

PSFCTR = poststratification factor (as discussed Section in 10.2.5).

The student full-sample reporting weight, FSTUWT, was used to derive all estimates of population and subpopulation characteristics that have been presented in the various NAEP reports, including simple estimates such as the proportion of students of a specified type who would respond in a certain way to an item and more complex estimates such as mean scale score levels. The distributions of the final student reporting weights are given in Table 10-8. The sample types contained in each reporting sample of the assessment can be found in Table 10-1.

As indicated earlier, under some simplifying assumptions the factor $1 + V_w^2$ indicates the approximate relative increase in variance of estimates resulting from the variability in the weights. The factor V_w^2 for each sample is readily derivable from Table 10-8 by squaring the ratio of the standard deviation to the mean weight. These factors, resulting from the combined effect of the variations in weights introduced by design and from other causes, are discussed in Section 10.2.3.

Table 10-8
Distributions of Final Student Weights for 1998 National Reporting Samples

Grade	Subject	n	Standard		25 th		75 th		Maximum
			Mean	Deviation	Minimum	Percentile	Median	Percentile	
4	25-Minute Writing	21,266	186	119	26	102	150	220	1,195
	Reading	8,217	480	308	70	269	373	631	2,707
	Civics Special Trend	2,264	1,742	867	401	1,098	1,519	2,242	6,585
	Civics	6,355	621	399	90	340	489	759	4,140
8	25-Minute Writing	21,463	171	104	17	102	137	207	1,075
	Reading	11,674	315	203	29	175	259	388	2,493
	Civics Special Trend	2,148	1,710	945	159	1,033	1,388	2,199	5,705
	Civics	8,553	430	265	47	254	345	526	2,370
12	50-Minute Writing	6,275	569	344	61	338	457	698	3,856
	25-Minute Writing	20,163	158	93	25	94	130	194	1,266
	Reading	13,123	241	161	35	129	194	297	1,373
	Civics Special Trend	2,296	1,399	790	273	870	1,153	1,693	4,809
	Civics	8,010	401	242	64	236	328	501	3,060
	50-Minute Writing	6,006	528	309	86	312	432	648	4,972

10.3 OTHER WEIGHTING PROCEDURES IN THE NATIONAL SAMPLES

10.3.1 Modular Weights

As discussed in Section 10.2, modular weights were computed for the reading assessment to facilitate analyses involving students from a single sample type. The same procedures were used to derive modular and reporting weights up through the weight trimming step described in Section 10.2.3.1. After trimming, weighting continued in two parallel processes. Final student reporting weights were the result of one of these processes, and modular weights were the result of the other.

Modular weights differ from reporting weights for reading in two ways. First, they did not contain the reporting factor described in Section 10.2.4. The second difference lies in the manner in which the weights were poststratified. Since the number of students in the reading reporting samples are nearly twice the number of students in each sample type (type 2 or type 3), the mean of the modular weights is about twice the mean of reporting weights for reading.

The modular weights were poststratified as described in Section 10.2.5, except that each sample type within each grade for reading was poststratified separately. The same initial adjustment cells were used: 7 cells based on race/region for each sample type at grade 12, and 14 cells based on race/region and eligibility class (of modal age, not of modal age) for each sample type at grades 4 and 8. Some adjustment factors were quite variable for the same adjustment cell across different sample types for the same grade and session. This indicates that the individual samples by sample type may not be particularly stable.

The modular weight is the student's base weight after the application of the various adjustments described in Section 10.2, with the exception of applying a reporting factor, and the new poststratification factor described above. The distributions of the modular weights are given in Table 10-9. Note that except for the reading subject, modular weights are identical to reporting weights for a particular grade/subject/sample type combination when that sample type is the only one included in the reporting sample for that grade.

Table 10-9
Distribution of Modular Weights Used in the 1998 National Assessment

Grade	Subject	n	Mean	Standard Deviation	25 th Percentile	Median	75 th Percentile	Maximum	
4	Reading/2*	4,593	859	510	127	462	721	1,113	3,460
	Reading/3	4,597	858	567	155	481	679	1,034	5,224
8	Reading/2*	6,848	537	344	61	338	457	698	3,856
	Reading/3	6,078	604	409	43	336	514	751	5,977
12	Reading/2*	7,048	444	317	45	224	348	594	2,303
	Reading/3	7,050	453	313	53	236	373	543	2,615

* 2 refers to sample type 2 and 3 refers to sample type 3.

10.3.2 Linking Weights

Linking (NL) weights were generated so that national NAEP and state-by-state assessments could be equated for national and state results to be reported on a common scale. Therefore, the results of each participating jurisdiction would be meaningfully compared with those from the nation samples. Technical details of the 1996 state assessments can be found in *the Technical Report for the NAEP 1996 State Assessment Program in Mathematics* (Allen, Jenkins, Kulick, and Zelenak, 1997) and in *the Technical Report for the NAEP 1996 State Assessment Program in Science* (Allen, Swinton, Isham, and Zelenak, 1998).

The fourth-grade reading and eighth-grade reading and writing assessments conducted in February 1998 in the NAEP 1998 state assessment consisted of identical assessment material to that administered in the corresponding national sample sessions. The guiding principles in the process of linking state and national results were similar to those used for the 1996 assessments. (Technical details of the NAEP 1996 state assessments are given in Allen, Jenkins, Kulick, and Zelenak (1997) and Allen, Swinton, Isham, and Zelenak (1998).) The national and state-by-state assessments were equated so that state and national results could be reported on a common scale. The equating was achieved by using from each assessment that part of the sample representing a common population. For the national samples, this consisted of those fourth-grade or eighth-grade public-school students from a participating state (including the District of Columbia) who were assessed in the national reading or (for grade 8) writing assessment reporting samples.

Although each sample of students received appropriate weights from the weighting procedure used for the national assessment, in an effort to increase the precision of the equating process, an additional weighting adjustment was developed and applied to each subsample by grade and subject, solely for use in equating. For each subsample, the distributions of the national sample reporting weights for three categorical variables were adjusted to agree closely with those obtained from the weighted aggregate sample from the state assessments in the participating states. The first two variables were NAEP region (Northeast, Southeast, Central, and West) and race/ethnicity (White non-Hispanic, Black non-Hispanic, Hispanic, and other). For fourth- and eighth-grade reading, the third variable was reading skill (very good, good, other). For eighth-grade writing, the third variable was the student's writing skill ("I am good at writing."). This variable was based on a writing background item that asks how much a student agrees with the statement "I am good at writing." The categorical variables and control totals for each of the assessed grades and subjects are presented in Tables 10-10 and 10-11.

Table 10-10
*First and Second Categorical Variables Used for Raking**

Raking Dimensions		Fourth Grade Reading Control Total	Eighth Grade Reading Control Total	Eighth Grade Writing Control Total
First Dimension	<i>NAEP Region</i>			
	Northeast	427,412	383,213	400,534
	Southeast	731,635	717,450	730,862
	Central	478,480	347,368	318,990
	West	975,015	960,961	971,641
	Total	2,612,532	2,408,992	2,422,027
Second Dimension	<i>Race/Ethnicity</i>			
	White non-Hispanic	1,573,388	1,452,593	1,430,992
	Black non-Hispanic	418,533	372,219	375,766
	Hispanic	445,567	427,097	454,611
	Other	175,043	157,082	160,658
	Total	2,612,532	2,408,992	2,422,027

*Due to rounding, the sum of values within categorical variables may not equal the corresponding totals.

Table 10-11
Third Categorical Variable Used for Raking

Grade	Skill		Control Totals*
4	Reading Skill	1. Very Good	1,105,087
		2. Good	965,306
		3. Other	542,139
		Total	2,612,532
8	Reading Skill	1. Very Good	596,581
		2. Good	845,194
		3. Other	967,216
		Total	2,408,992
8	Writing Skill (<i>"I am good at writing."</i>)	1. Agree	1,206,813
		2. Undecided	708,624
		3. Other	506,590
		Total	2,422,027

*Due to rounding, the sum of skill values may not equal the corresponding totals.

The equating of each weight distribution was achieved using a procedure known as iterative proportional fitting, or raking (described by Little & Rubin, 1987). In raking, the marginal population totals, $N_{i.}$ and $N_{.j}$ are known (i.e., age and gender population counts); however, the interior cells of the

cross-tabulation N_{ij} (the age by gender cells) are estimated from the sample by \hat{N}_{ij} , where these are the sum of weights in the cells.

The raking algorithm proceeds by proportionally scaling the \hat{N}_{ij} , such that the following relations are satisfied:

$$\sum_j \hat{N}_{ij} = N_{i.}$$

and

$$\sum_i \hat{N}_{ij} = N_{.j}.$$

At the completion of the fitting, adjustment factors were derived. The national sample weights for each subgroup were multiplied by these adjustment factors to force their distribution to agree with those from the aggregated state samples for each of these three variables in turn. This process was then repeated, and the final set of adjusted weights was compared with the state sample weights on all three distributions, and found to be in very close agreement. Table 10-12 shows the distribution of the adjustment factors for each of the grades and subjects assessed.

Table 10-12
Percentiles of Raking Adjustments

Distribution	Grade 4 Reading	Grade 8 Reading	Grade 8 Writing
Minimum	0.805	0.885	0.832
10th Percentile	0.816	0.901	0.851
25th Percentile	0.837	0.912	0.899
Median	0.955	1.008	0.987
75th Percentile	1.121	1.026	1.076
90th Percentile	1.150	1.196	1.237
Maximum	1.640	1.523	1.570

10.3.3 School Weights

The sampling procedures used to obtain national probability samples of assessed students also gave rise indirectly to several national probability samples of schools (from which the students were subsequently sampled). So that the school samples can be utilized for making national estimates about schools, appropriate nonresponse adjusted survey weights have been developed.

The school weights were computed separately by session within grade. The school weights were a direct by-product of the student weighting process. The weight for school i in session h is given by

$$SW_{hi} = PSUWGT_{M_i} \cdot QSCHWT_i \cdot SCH_WT_i \cdot SA_WT_{hi} \cdot STYWT_{hi} \cdot SF_WT_{hi}$$

where

$PSUWGT_{M_i}$, $QSCHWT_i$, SCH_WT_i , SA_WT_{hi} , $STYWT_{hi}$, and SF_WT_{hi} are defined in Section 10.2.

The school weights for the reading samples are modular weights. Each sample defined by sample type weights up separately to the population. Different school weights are required for analyses involving schools from both sample types. The weights in such cases can be developed by dividing the modular weights by two.

Twelve samples of schools were weighted to be nationally representative. For each grade, the samples include writing/civics, civics special trend, reading sample type 2, and reading sample type 3.

10.3.4 Reporting Weights with Accommodations

Reporting weights were generated using accommodated students in the 1998 reading samples as part of the reporting sample. The weights may be useful in the year 2002 when reporting trend from 1998. These weights will also be used in looking into issues dealing with accommodation. The procedure began with the trimmed weights (Section 10.2.3.1), and proceeded to the application of the reporting factors as shown in Table 10-13. The reporting factors relating to the reporting sample with accommodated students were set to 1.0, while the reporting factors for non-SD/LEP students in the 1998 national reporting sample were 0.5. Thus nonzero weights were produced for the SD/LEP students in sample type 3, while not including the SD/LEP students in sample type 2.

Table 10-13
*Reporting Factors for the Reporting Weights with Accommodations
for the 1998 National Reading Assessment*

Sample Type	Non SD/LEP Students	SD/LEP Students
2	.5	—
3	.5	1

Poststratification was done on the accommodated reporting weights. The resulting final accommodated reporting weights are summarized in Table 10-14.

Table 10-14
*Distribution of Accommodated Reporting Weights
for the 1998 National Reading Assessment*

Grade	n	Standard		Minimum	25 th	Median	75 th	Maximum
		Mean	Deviation		Percentile		Percentile	
4	8,205	480.80	306.97	74.22	275.84	366.67	624.37	4,662.20
8	11,561	317.77	223.43	29.09	177.33	260.62	389.67	4,887.60
12	13,087	241.76	162.09	35.34	130.09	191.88	295.97	1,424.57

10.3.5 Jackknife Replicate Weights

In addition to the weights that were used to derive all estimates of population and subpopulation characteristics, other sets of weights, called jackknife replicate weights, were derived to facilitate the estimation of sampling variability by the jackknife variance estimation technique. These weights and the jackknife estimator are discussed in Section 10.5.

10.4 POTENTIAL FOR BIAS DUE TO NONRESPONSE

Although school and student nonresponse adjustments are intended to reduce the potential for nonparticipation to bias the assessment results, they cannot completely eliminate this potential bias with certainty. The extent of bias remains unknown, of course, since there are no assessment data for the nonparticipating schools and students. Recently, some studies related with this issue had been done, such as on the effects of excluded students in reporting results (see Donoghue, 2000).

Some insight can be gained about the potential for residual nonresponse bias, however, by examining the weighted school- and student-level distributions of characteristics known for both participants and nonparticipants, especially for those characteristics known or thought likely to be related to achievement on the assessment. If the distributions for the full sample of schools (or students) without the use of nonresponse adjustments are close to those for the participants with nonresponse adjustments applied, there is reason to be confident that the bias from nonparticipation is small.

There are several school-level characteristics available for both participating and nonparticipating schools. The tables below show the combined impact of nonresponse and of the nonresponse adjustments on the distributions of schools (weighted by the estimated number of eligible students enrolled) and students, by the type of school (public, Catholic, other nonpublic), the size of the school as measured by the estimated number of eligible students enrolled, and the urban/rural nature of the place where the school is located. Three size classes have been defined for each grade. The data in the tables that follow are for the 25-minute writing assessment because it is the largest assessment at each grade. It is assumed that other large assessments would behave similarly. More of these types of data are available for other grades and subjects in Appendix A.

Several student-level characteristics are available for both absent and assessed students. The tables that follow show the impact of school nonresponse and nonresponse adjustments, and student nonresponse and nonresponse adjustments on the distributions of eligible students for each grade. This discussion also focuses on the writing/civics session for school-level summaries, and 25-minute writing assessment for student-level tables. The distributions are presented by age category (at or below modal age, and above modal age), race category (White, Black, Hispanic, and other), gender, SD, and LEP.

Table 10-15 shows the weighted marginal distributions of students for each of the three classification variables for each grade, using weighted eligible schools. The distributions before school nonresponse adjustments are based on the full sample of in-scope schools for the writing/civics session—those participating, plus those refusals for which no substitute participated. The distributions after school nonresponse adjustments are based only on participating schools for writing/civics, with school nonresponse adjustments applied to them.

It can be seen from Table 10-15 that even though the level of school nonparticipation is as high as 18 percent after substitution for grade 12 (see Table 3-7) and somewhat lower for the other grades, for the most part, the distributions for the three characteristics considered remain similar. Exceptions may be rural schools in grades 4 and 12, and large grade 12 schools.

Table 10-15
Distribution of Populations of Eligible Students Based on Full Weighted Sample of Eligible Schools, Before and After School Nonresponse Adjustments, 1998 National 25-Minute Writing Samples

Population	Grade 4		Grade 8		Grade 12	
	Before	After	Before	After	Before	After
Total Population	3,775,102	3,775,102	3,714,224	3,714,224	2,856,379	2,856,379
School Type						
Catholic	6.0%	6.8%	4.9%	5.8%	5.3%	6.4%
Other Nonpublic	4.5%	3.7%	4.4%	4.3%	3.8%	2.7%
Public*	89.5%	89.5%	90.6%	89.9%	90.9%	90.9%
School Size[†]						
1	17.8%	18.1%	9.7%	11.1%	5.3%	6.1%
2	43.7%	42.5%	53.2%	52.4%	67.9%	69.3%
3	38.5%	39.5%	37.1%	36.5%	26.8%	24.6%
School Location						
Large City	18.5%	17.4%	16.5%	17.2%	14.2%	14.3%
Midsize City	19.8%	19.4%	18.5%	17.4%	18.6%	17.3%
Urban Fringe/Large City	26.9%	26.6%	27.1%	27.2%	29.1%	28.7%
Urban Fringe/Midsize City	7.8%	8.0%	10.3%	10.5%	9.5%	10.4%
Large Town	1.1%	0.9%	1.7%	1.2%	1.1%	1.0%
Small Town	11.4%	11.2%	12.9%	11.7%	15.4%	13.8%
Rural	14.5%	16.5%	13.0%	14.7%	12.1%	14.6%

* The term “public schools” extends to state-run, Department of Defense Education Activity (DoDEA), and Bureau of Indian Affairs (BIA) schools.

[†] Distributions by school size are only comparable to 1996 assessments, since students were eligible by grade only, instead of by grade or age before 1996. School size = number of eligible students enrolled:

	1	2	3
Grade 4	1–49	50–99	100 +
Grade 8	1–49	50–299	300 +
Grade 12	1–49	50–399	400 +

Table 10-16 shows the distributions of the same three classification variables, plus additional distributions of student-level characteristics, using weighted eligible students. The distributions before student nonresponse adjustments are based on assessed and absent science students (with base weights adjusted for school nonparticipation). The distributions after student nonresponse adjustments are based on assessed science students only, with the student nonresponse adjustments also applied to them.

Table 10-16
*Distribution of Populations of Eligible Students Before and After Student Nonresponse Adjustments,
 1998 National 25-Minute Writing Samples*

Population	Grade 4		Grade 8		Grade 12	
	Before	After	Before	After	Before	After
Total Population	3,447,973	3,447,973	3,477,714	3,477,714	2,598,835	2,598,835
School Type						
Catholic	7.1%	7.1%	6.0%	6.3%	6.9%	7.8%
Other Nonpublic	3.8%	3.9%	4.2%	4.3%	2.7%	3.2%
Public*	89.1%	89.0%	89.9%	89.4%	90.4%	88.9%
School Location						
Large City	16.6%	16.5%	17.2%	17.0%	14.4%	14.0%
Midsize City	19.6%	19.6%	17.0%	16.9%	17.6%	17.3%
Urban Fringe/Large City	27.2%	27.3%	28.1%	28.2%	28.9%	28.9%
Urban Fringe/Midsize	7.7%	7.6%	10.6%	10.7%	10.3%	10.4%
City	0.8%	0.8%	1.1%	1.2%	0.8%	0.8%
Large Town	11.5%	11.5%	11.4%	11.5%	13.7%	14.0%
Small Town	16.7%	16.7%	14.5%	14.5%	14.3%	14.6%
Rural						
Age Category						
At Modal Age or Younger	63.8%	63.7%	59.2%	59.4%	63.6%	64.0%
Older than Modal Age	36.2%	36.3%	40.8%	40.6%	36.4%	36.0%
Race/Ethnicity Category						
White	59.2%	59.0%	62.4%	62.3%	68.6%	68.1%
Black	14.1%	13.8%	13.2%	13.0%	11.5%	11.1%
Hispanic	19.7%	20.0%	18.1%	18.3%	13.2%	13.4%
Other	7.0%	7.2%	6.3%	6.4%	6.7%	7.4%
Gender[†]						
Male	50.5%	50.6%	50.2%	50.0%	48.4%	47.9%
Female	49.4%	49.3%	49.8%	50.0%	51.6%	52.0%
SD						
Yes	7.5%	7.5%	7.3%	7.0%	4.7%	4.3%
No	92.5%	92.5%	92.7%	93.0%	95.3%	95.7%
LEP						
Yes	3.5%	3.5%	2.7%	2.7%	2.1%	2.2%
No	96.5%	96.5%	97.3%	97.3%	97.9%	97.8%
SD, LEP						
SD yes, LEP yes	0.2%	0.2%	0.3%	0.3%	0.1%	0.1%
SD yes, LEP no	7.4%	7.4%	7.0%	6.8%	4.6%	4.2%
SD no, LEP yes	3.3%	3.3%	2.4%	2.5%	2.0%	2.1%
SD no, LEP no	89.2%	89.2%	90.3%	90.5%	93.3%	93.6%

* The term "public schools" extends to state-run, Department of Defense Education Activity (DoDEA), and Bureau of Indian Affairs (BIA) schools.

† Gender is unknown for a small percentage of students.

The rates of student nonparticipation for 25-minute writing were 5.1 percent for grade 4, 7.8 percent for grade 8, and 20.3 percent for grade 12 (see Table 3-16). Table 10-17 shows that for the distributions of type of school attended and place where the school is located, the combined effect of student nonparticipation and the subsequent nonresponse adjustments have resulted in very little change in distribution.

When comparing the distributions in Table 10-16 before and after student nonresponse adjustments, distributions by age category and race/ethnicity are expected to be similar because these variables were used to determine student nonresponse adjustment classes. However, the distributions by

gender, SD, and LEP are also similar. To the extent that nonrespondents would perform like respondents with the same characteristics (defined by the classification variables in the tables), the bias in the assessment data is small.

Table 10-17 shows the weighted distributions of eligible students in participating schools, using the base weights of assessed and absent students unadjusted for school-level nonresponse. Tables 10-16 and 10-17 show that both school and student-level nonresponse and nonresponse adjustments have little effect on the distributions of eligible students by age, race/ethnicity, gender, SD and LEP. All of the distributions in the tables are similar.

Table 10-17

Distribution of Populations of Eligible Students Before School and Student Nonresponse Adjustments, 1998 National 25-Minute Writing Samples

Population	Grade 4	Grade 8	Grade 12
Total Population	3,065,866	2,946,000	2,598,835
Age Category			
At Modal Age or Younger	64.2%	59.3%	63.6%
Older than Modal Age	35.8%	40.7%	36.4%
Race/Ethnicity Category			
White	58.4%	61.9%	68.6%
Black	14.5%	13.6%	11.5%
Hispanic	20.0%	18.3%	13.2%
Other	7.0%	6.2%	6.7%
Gender*			
Male	50.5%	50.2%	48.4%
Female	49.4%	49.8%	51.6%
SD			
Yes	7.6%	7.2%	4.7%
No	92.4%	92.8%	95.3%
LEP			
Yes	3.6%	2.8%	2.1%
No	96.4%	97.2%	97.9%
SD, LEP			
SD yes, LEP yes	0.2%	0.3%	0.1%
SD yes, LEP no	7.4%	7.0%	4.6%
SD no, LEP yes	3.4%	2.5%	2.0%
SD no, LEP no	89.0%	90.2%	93.3%

* Gender is unknown for a small percentage of students.

Further information about potential nonresponse bias can be gained by studying the absent students. NAEP scale score estimates are biased to the extent that assessed and absent students within the same weighting class differ in their distribution of scale scores. It seems likely that the assumption that absent students are similar in proficiency to assessed students is reasonable for some absent students namely, those whose absence can be characterized as random. Conversely, it seems likely that students with longer and more consistent patterns of absenteeism, such as truants, dropouts, near dropouts, and the chronically ill, are unlikely to be as proficient as their assessed counterparts.

In the 1998 assessments, schools were asked to classify each absent student into one of nine categories. The results of this classification for the 25-minute writing assessment are shown in Table 10-18. The discussion focuses on the 25-minute writing assessment because it is the largest. It is assumed that the other large assessments would behave similarly.

Table 10-18 shows that, as anticipated, the majority of absence from the assessment was the result of an absence from school of a temporary and unscheduled nature. The table shows that absence among twelfth-graders occurs at about four times the rate of absence among fourth-graders, and two-and-a-half times that of eighth-graders. The proportion of absence classified as temporary differs somewhat by grade, but is of the same magnitude for grades 8 and 12. These two facts taken together suggest strongly that a substantial proportion of the temporary absences among twelfth-grade students is not a result of illness, because such absences are occurring at almost three times the rate that they do among fourth- or eighth-grade students. Whereas it might be reasonable to regard temporary absence due to illness as independent of proficiency, for other temporary absences, this appears less tenable. The data in the table give support to the contention that, at grade 4, student absences are unlikely to introduce any significant bias into NAEP estimates. The absentee rate is low; most absences are temporary, and a third of the remaining absences are a result of parental refusal.

Table 10-18
*Weighted Distribution of Absent Students by Nature of Absenteeism
for All Grades, 1998 National 25-Minute Writing Samples*

Nature of Absenteeism	Grade 4	Grade 8	Grade 12
Temporary Absence [*]	87.4%	74.6%	71.9%
Long-Term Absence [†]	0.7%	2.2%	0.8%
Chronic Truant	0.2%	1.6%	0.8%
Suspended or Expelled	0.9%	3.7%	0.4%
In School, Did Not Attend	0.2%	1.4%	8.3%
Disruptive Behavior	0.0%	0.4%	0.1%
Parent Refusal	4.1%	9.5%	3.5%
Student Refusal	0.2%	1.7%	7.4%
Missing	0.0%	0.0%	0.0%
Other, Specify on Cover	0.8%	2.0%	5.5%
Incorrectly Coded as Excluded	5.3%	2.8%	1.2%
Total Absentee Sample	1,067	1,731	5,017
Total Sample Size of Invited Students	20,883	22,317	24,522
Overall Absentee Rate, Unweighted	5.1%	7.8%	20.5%

^{*} Absent less than two weeks due to illness, disability, or excused absence.

[†] Absent more than two weeks due to illness or disability.

At grades 8 and 12, however, a significant component of absenteeism is not temporary or due to parental refusal. Chronic truants, those suspended, and those in school but did not attend, and disruptive behavior constitute the obvious candidates for potential bias. These groups comprise 7.1 percent of absent students at grade 8 (or 0.6% of the total sample) and 9.6 percent of absent students at grade 12 (or 2.0% of the total sample). Thus their potential for introducing significant bias under the current procedures is minor.

10.5 VARIANCE ESTIMATION

A major source of uncertainty in the estimation of the value in the population of a variable of interest exists because information about the variable is obtained on only a sample from the population. To reflect this fact, it is important to attach to any statistic (e.g., a mean) an estimate of the sampling variability to be expected for that statistic. Estimates of sampling variability provide information about how much the value of a given statistic would be likely to change if the statistic had been based on another, equivalent, sample of individuals drawn in exactly the same manner as the achieved sample.

Another important source of variability is that due to imprecision in the measurement of individual scale scores. For the 1998 assessment, scale scores in all subject areas were summarized through item response theory (IRT) models, but not in the way that these models are used in standard applications where each person responds to enough items to allow for precise estimation of that person's scale score. In NAEP, each individual responds to relatively few items so that individual scale score values are not well determined. Consequently, the variance of any statistic based on scale score values has a component due to the imprecision in the measurement of the scale scores of the sampled individuals in addition to a component measuring sampling variability. The estimation of the component of variability due to measurement imprecision and its effect on the total variability of statistics based on scale score values are discussed in Chapter 12.

The estimation of the sampling variability of any statistic must take into account the sample design. In particular, because of the effects of cluster selection (students within schools, schools within PSUs) and because of effects of nonresponse and poststratification adjustments, observations made on different students cannot be assumed to be independent of each other (and are, in fact, generally positively correlated). Furthermore, to account for the differential probabilities of selection (and the various adjustments), each student has an associated sampling weight, which should be used in the computation of any statistic and is itself subject to sampling variability. Ignoring the special characteristics of the sample design and treating the data as if the observations were independent and identically distributed, will generally produce underestimates of the true sampling variability, due to the clustering and unequal sampling weights.

10.5.1 Procedure to Estimate Sampling Variability

The proper estimation of the sampling variability of a statistic based on the NAEP data is complicated and requires techniques beyond those commonly available in standard statistical packages. Fortunately, the jackknife procedure (see, e.g., Kish & Frankel, 1974; Rust, 1985; Wolter, 1985) provides good quality estimates of the sampling variability of most statistics, at the expense of increased computation, and can be used in concert with standard statistical packages to obtain a proper estimate of sampling variability.

The jackknife procedure used by NAEP has a number of properties that make it particularly suited for the analysis of NAEP data. When properly applied, a jackknife estimate of the variability of a linear estimator (such as a total) will be the same as the standard textbook variance estimate specified for the sample design (if the first-stage units were sampled with replacement and approximately so otherwise). Additionally, if the finite sampling corrections for the first-stage units can be ignored, the jackknife produces asymptotically consistent variance estimates for statistics such as ratios, regression estimates, or weighted means and for any other nonlinear statistic that can be expressed as a smooth function of estimated totals of one or more variables (Krewski & Rao, 1981).

Through the creation of student replicate weights (defined below), the jackknife procedure allows the measurement of variability attributable to the use of poststratification and other weight adjustment factors that are dependent on the observed sample data. Once these replicate weights are derived, it is a straightforward matter to obtain the jackknife variance estimate of any statistic.

The jackknife procedure in this application is based on the development of a set of jackknife replicate weights for each assessed student (or school depending on the file involved). The replicate weights are developed in such a way that, when utilized as described below, approximately unbiased estimates of the sampling variance of an estimate result, with an adequate number of degrees of freedom to be useful for purposes of making inferences about the parameter of interest.

The estimated sampling variance of a parameter estimator t is the sum of M squared differences (where M is the number of replicate weights developed):

$$\hat{Var}(t) = \sum_{i=1}^M (t_i - t)^2$$

where t_i denotes the estimator of the parameter of interest, obtained using the i^{th} set of replicate weights, $SRWT_i$, in place of the original sample of full sample estimates $FSTUWT$.

There were 62 replicate weights developed using the procedures outlined below. Full details of the generation of replicate weights for all samples are given in *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

Of the 62 replicate weights formed for each record from a national assessment sample, 36 act to reflect the amount of sampling variance contributed by the noncertainty strata of PSUs, with the remaining 26 replicate weights reflecting the variance contribution of the certainty PSU samples.

The derivation of the 36 replicate weights reflecting the variance of the noncertainty PSUs involves first defining pairs of PSUs in a manner that models the design as one in which two PSUs are drawn with replacement per stratum. This definition of pairs is undertaken in a manner closely reflective of the actual design, in that PSUs are pairs that are drawn from strata within the same subuniverse, and with similar stratum characteristics. The same definition of pairs was used for each of the age/grade classes in the national assessment, since all were drawn from the same sample of noncertainty PSUs. The 72 noncertainty PSUs, drawn one from each of 72 strata, were formed into 36 pairs of PSUs, where the pairs were composed of PSUs from adjacent strata within each subuniverse (thus the strata were relatively similar on socioeconomic characteristics such as proportion minority population, population change since 1980, per capita income, civilian unemployment rate, educational attainment, and unemployment rate). Whereas the actual sample design was to select one PSU with probability proportional to size from each of 72 strata, for variance estimation purposes the design is regarded as calling for the selection of two PSUs with probability proportional to size with replacement from each of 36 strata. This procedure likely gives a small positive bias to estimates of sampling error.

The student replicate weight for the i^{th} pair of noncertainty PSUs, for the 36 pairs corresponding to values of i from 1 to 36, is computed as follows:

1. Let W_B be the base weight of a student, as described in Section 10.2, which accounts for the various components of the selection probability for the student.
2. At random, one PSU in each pair is denoted as PSU number 1, while the other is denoted as PSU number 2. The i^{th} replicate base weight W_{Bi} is given by:

$$W_{Bi} = \begin{cases} 0 & \text{if the student belongs to PSU number 1 of pair } i \\ 2 \times W_B & \text{if the student belongs to PSU number 2 of pair } i \\ W_B & \text{if the student is from neither PSU in pair } i \end{cases}$$

3. The i^{th} student replicate weight $SRWT_i$ is obtained by applying the various school and student nonresponse adjustments, the weight trimming, and the poststratification to the i^{th} set of replicate base weights, using procedures identical to those used to obtain the final student weights WT from the set of base weights W_B .

In brief, the procedure for deriving the sets of W_{Bi} values from the W_B values reflects the sampling of PSUs, schools, sessions, and students. By repeating the various weight adjustment procedures in each set of replicate base weights, the impact of these procedures on the sampling variance of the estimator, t , is appropriately reflected in the variance estimator $\hat{Var}(t)$ defined above.

The procedure for obtaining the 26 sets of replicate weights to estimate the sampling variance from the certainty PSUs is analogous, but somewhat more complex. The first stage of sampling in this case is at the school level, and the derivation of replicate weights must reflect appropriately the sampling of schools within certainty PSUs. Since each of the three grade classes in the national assessment involved different samples of schools, the procedure for forming replicate base weights was individualized to each of these sample components. In common across these three samples were the 22 certainty PSUs used, and the fact that 26 replicate weights were formed in each case.

For each grade, within the 22 certainty PSUs, a sample of schools was drawn systematically within each. Using the schools listed in order of sample selection within each of eight “combinations” of NAEP region and type of school (public, nonpublic), successive schools were grouped (i.e., PAIR). The number of variance groups within a combination depended on the number of schools in the combination, or indirectly assigned in proportion to the relative size of the combination. Thus, generally speaking, the largest combination were assigned the largest numbers of replicates (or pairs). When splitting the combinations, the schools were split into groups of (as close as possible) equal size, based on the ordering at the time of sample selection. One group was assigned to each replicate. Within each group in each combination, schools were alternately numbered 1 or 2 starting randomly. When, however, there were exactly three schools sampled in the variance group, the schools were randomly numbered 1, 2, or 3. The method of forming replicate base weights in variance groups (i.e., PAIR) where there were not exactly three schools was the same as for the noncertainty strata. If a variance group (PAIR) contained three schools, students in these schools had their weights perturbed for two sets of replicates, say i_1 and i_2 , as follows:

$$W_{Bi_1} = \begin{cases} 0 & \text{if the student in school number 1 of a PSU in set } i \\ 1.5 \times W_B & \text{if the student in school number 2 or 3 of a PSU in set } i \\ W_B & \text{if the student does not belong to a PSU in set } i \end{cases}$$

$$W_{Bi_2} = \begin{cases} 1.5 \times W_B & \text{if the student in school number 1 or 2 of a PSU in set } i \\ 0 & \text{if the student in school number 3 of a PSU in set } i \\ W_B & \text{if the student does not belong to a PSU in set } i \end{cases}$$

The actual pattern of replicate base weight assignment used for each of the samples is given in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

The nonresponse, trimming, and poststratification adjustments were applied to each set of replicate base weights to derive the final replicate weights in each case, exactly as in the noncertainty PSUs. In fact, these procedures were applied to the full set of weights from all parts of the given sample together, just as for the full sample weights. That is, for example, poststratification factors were derived from the full set of data for each replicate, not separately for certainty and noncertainty PSUs.

This estimation technique was used by NAEP to estimate all sampling errors presented in the various reports. A further discussion of the variance estimation procedure used by NAEP, including a discussion of alternative jackknife estimators that were also considered, appears in Johnson (1989).

As stated above, a separate estimate of the contribution to variance due to the imprecision in the measure of individual proficiencies is made and added to the jackknife estimate of variance. That variance component could have been approximately reflected in the jackknife variance estimates simply by separately applying the IRT computations to each jackknife replicate. Because of the heavier IRT computational load, this was not done. Less work was involved by the simple procedure of making separate estimates of this component to be added to the jackknife variance estimates. Also, a separate measure of this component of variance is then available, which would not be so if it were reflected in the jackknife variance estimate.

10.5.2 Approximating the Sampling Variance Using Design Effects

In practical terms, the major expenditure of resources in the computation of a jackknife variance estimate occurs in the preparation of estimates for each of the pseudo-replicates. In the 1998 assessment, this implies that the statistic of interest has to be recomputed up to 63 times, once for the overall estimate t , and once for each of the up to 62 pseudo-replicates t_i . Because this is a considerable increase in the amount of computation required, relative to a conventional variance estimate, it is of interest to see how much the jackknife variance estimates differ from their less computationally intensive, simple random sampling based, analogues.

The comparison of the conventional and the jackknife methods of variance estimation will be in terms of a statistic called the *design effect*, which was developed by Kish (1965) and extended by Kish and Frankel (1974). The design effect for a statistic is the ratio of the actual variance of the statistic (taking the sample design into account) over the conventional variance estimate based on a simple random sample with the same number of elements. The design effect is the inflation factor to be applied to the conventional variance estimate in order to adjust error estimates based on simple random sampling assumptions to account approximately for the effect of the sample design. The value of the design effect depends on the type of statistic computed and the variables considered in a particular analysis as well as the combined clustering, stratification, and weighting effects occurring among sampled elements. While stratification drives down the sampling variance, the effects of clustering and weighting that drive variances up are generally sufficient to produce variance estimates that are larger than variances based on simple random sampling assumptions. Consequently, the design effects will be greater than one. In NAEP, the underestimates are the result of ignoring the effects of clustering and unequal probabilities of selection in the variance calculations.

Since most of the analyses conducted by NAEP are based on the results of scaling models that summarize performance of students across a learning area, design effects are expected for analyses based on these scale scores. For reasons given in Chapter 12, NAEP provides each individual with a set of "plausible values," each of which is a random draw from the distribution of the potential scale scores for

that individual. Since NAEP's current interest is on the effect of the sampling design on estimation and inference, attention is restricted to a single measure of an individual's scale score, the first plausible value of the individual's scale score.

A key statistic of interest is the estimated mean scale score of a subgroup of the population. An estimate of the subgroup mean scale score is the weighted mean of the first plausible values of scale score of the sampled individuals who belong to the subpopulation of interest. Let \bar{Y} be the weighted mean of the plausible values of the sampled members of the subpopulation. The conventional estimate of the variance of \bar{Y} is

$$Var_{con}(\bar{Y}) = \frac{\sum_{i=1}^N w_i (y_i - \bar{Y})^2}{N \cdot W_+},$$

where N is the total number of sampled individuals in the subpopulation for which plausible values are available, w_i is the weight of the i^{th} individual, y_i is a plausible value from the distribution of potential proficiencies for that individual, and W_+ is the sum of the weights across the N individuals.

The design effect for the subgroup mean scale score estimate is

$$deff(\bar{Y}) = Var_{JK}(\bar{Y}) / Var_{con}(\bar{Y})$$

where $Var_{JK}(\bar{Y})$ is the jackknife variance of \bar{Y} (As has been pointed out previously, $Var_{JK}(\bar{Y})$ as computed does not measure the variability of \bar{Y} due to imprecision in the measurement of the proficiencies of the sampled individuals. The estimation of this very important source of variability is discussed in Chapter 12.) Of the factors that determine $deff(\bar{Y})$, the effects of stratification are usually less than one, which means the efficiency of a stratified sampling is better than a simple random sampling; whereas the clustering effects are always larger than one. The clustering effects can be approximated by

$$1 + (\bar{m} - 1)\rho,$$

where \bar{m} is the average cluster size and ρ is the intracluster correlation (Cochran, 1977, p. 209). Therefore, the large cluster size or large intercluster correlation will inflate the clustering effects.

Values of the design effects for subgroup mean proficiencies are displayed, by grade, in Tables 10-19 through 10-21, for the 1998 national assessments of reading, writing, and civics, respectively. Design effects are shown for the population as a whole (Total) as well as for a variety of demographic subgroups: gender; race/ethnicity (White, Black, Hispanic, Asian American, other); type of location (central city, urban fringe/large town, rural/small town); parental education (did not graduate high school, graduated high school, post-high school, graduated college, unknown); and type of school (public, nonpublic). These particular demographic variables were selected because (1) they are major variables in NAEP reports and (2) they reflect different types of divisions of the population that might have different levels of sampling variability.

The tables show that the design effects are predominantly larger than 1, indicating that standard variance estimation formulas will be generally too small, usually markedly so. Although the design effects appear somewhat different for certain subgroups of the population, they are, perhaps, similar enough (at least within a subject and grade) to select an overall composite value that is adequate for most purposes. In choosing a composite design effect, some consideration must be made about the relative

consequences of overestimating the variance as opposed to underestimating the variance. For example, if an overestimate of the variance is viewed as severe an error as an underestimate, the composite design effect should be near to the center of the distributions of the design effects. Possible composites of this type are the mean and median design effects across the combined distribution of all design effects. Larger design effects should be used if it is felt that it is a graver error to underestimate the variability of a statistic than to overestimate it. For example, Johnson and King (1987) examine estimation of variances using design effects (among other techniques) under the assumption that the consequences of an underestimate are three times as severe as those of an overestimate of the same magnitude. Adopting a loss function that is a weighted sum of absolute values of the deviations of predicted from actual with underestimates receiving three times the weight of overestimates, produces the upper quartile of the design effects as the composite value. This assumes that the distribution of design effects is roughly independent of the jackknife estimates of variance, so that the size of a design effect does not depend on the size of the variance.

To compare Table 10-21 with Tables 10-19 and 10-20, the design effects for mean civics proficiencies are smaller than those of reading and writing. The reading reporting samples consist of non-SD/LEP students in sample types 2 and 3, and SD/LEP students in sample types 2. The intraclass correlation is larger for reading reporting samples that contain large groups of non-SD/LEP students. Therefore, the clustering effects for the reading reporting samples become larger than those of civics, which only used students in sample type 3.

Table 10-19
*Design Effects by Demographic Subgroup and Grade
for Mean Reading Scale Scores**

	Grade 4	Grade 8	Grade 12
Total	3.15	5.30	3.98
Male	2.95	3.69	3.86
Female	1.38	3.14	2.09
White	2.55	4.55	2.96
Black	2.31	2.55	3.62
Hispanic	3.01	7.23	3.08
Asian American	1.35	7.62	4.53
Other race/ethnicity	1.50	2.30	1.57
Urban	6.12	7.81	8.11
Suburban	4.72	6.52	3.98
Rural	2.24	4.80	3.70
PARED < HS	1.00	2.22	1.74
PARED = HS	1.41	2.96	1.69
PARED > HS	0.92	2.47	1.77
PARED = College	2.68	2.72	2.15
PARED = Unknown	1.40	2.17	1.51
Public school	2.92	4.64	4.09
Nonpublic school	6.37	6.59	3.68

* Design effects are based on the conventional and jackknife variances of subgroup means of the first plausible values of scale score.

Table 10-20*Design Effects by Demographic Subgroup and Grade for Mean Writing Scale Scores**

	Grade 4	Grade 8	Grade 12
Total	5.42	6.42	6.60
Male	3.48	5.11	4.14
Female	3.11	3.26	3.99
White	3.95	5.57	4.90
Black	1.88	2.53	5.01
Hispanic	5.76	5.45	3.02
Asian American	3.06	9.58	6.89
Other race/ethnicity	2.04	1.66	2.06
Urban	6.90	10.40	10.92
Suburban	5.95	12.95	8.88
Rural	6.48	4.74	2.42
PARED < HS	6.07	3.45	1.87
PARED = HS	1.65	1.40	1.71
PARED > HS	2.12	2.51	2.62
PARED = College	4.21	5.12	3.70
PARED = Unknown	1.45	1.14	1.38
Public school	5.80	5.71	7.09
Nonpublic school	4.59	5.33	5.60

* Design effects are based on the conventional and jackknife variances of subgroup means of the first plausible values of scale score.

Table 10-21*Design Effects by Demographic Subgroup and Grade for Mean Civics Scale Scores**

	Grade 4	Grade 8	Grade 12
Total	2.34	3.23	3.70
Male	1.82	2.57	2.83
Female	1.48	1.95	2.36
White	2.24	3.25	3.39
Black	0.82	1.33	2.95
Hispanic	2.79	1.42	1.54
Asian American	0.94	8.44	6.41
Other race/ethnicity	1.41	1.02	1.78
Urban	2.15	3.67	4.52
Suburban	2.65	3.75	3.74
Rural	4.32	3.88	3.15
PARED < HS	1.35	3.66	1.19
PARED = HS	1.94	1.75	0.97
PARED > HS	1.34	1.84	2.07
PARED = College	1.83	2.16	2.5
PARED = Unknown	1.67	1.67	1.53
Public school	2.13	2.84	3.85
Nonpublic school	4.05	12.31	2.71

* Design effects are based on the conventional and jackknife variances of subgroup means of the first plausible values of scale score.

Table 10-22 gives the composite values of mean, median, and upper quartile of the distribution of design effects for mean scale score by grade for the reading, writing, and civics assessments, and across those assessments.

Table 10-22
*Within-Grade Mean, Median, and Upper Quartile of the
 Distribution of Design Effects for 1998 National Assessments
 by Subject Area and Across Subject Areas*

Statistic	Grade 4	Grade 8	Grade 12
Distribution Across Demographic Subgroups			
Mean Reading Proficiencies			
Upper Quartile	3.00	6.22	3.95
Mean	2.67	4.40	3.23
Median	2.43	4.12	3.35
Mean Writing Proficiencies			
Upper Quartile	5.79	5.68	6.35
Mean	4.11	5.13	4.60
Median	4.08	5.12	4.07
Mean Civics Proficiencies			
Upper Quartile	2.32	3.67	3.62
Mean	2.07	3.37	2.84
Median	1.89	2.71	2.77
Distribution Across Subject Areas and Demographic Subgroups			
Across Subject Areas			
Upper Quartile	4.03	5.42	4.07
Mean	2.95	4.30	3.56
Median	2.33	3.56	3.12

* Design effects are based on the conventional and jackknife variances of subgroup means of the first plausible values of scale score.

The $Var_{con}(\bar{Y})$ as defined above is an estimate of S^2/N where S^2 represents the unit variance for a simple random sample for the population of students from which the sample is also drawn. This is an appropriate estimate of the increase in variance over simple random sampling from that population due to the effects of weighting. However, the computer packages used for estimating the variance may not reflect the weights in estimating the unit variance, as given above, but instead may provide an estimate of a unit variance of the form

$$\frac{1}{N(N-1)} \sum_{i=1}^N (y_i - \bar{Y})^2.$$

In this case, the unweighted estimate of unit variance would be appropriate for the denominator of a design effect measure of the increase in variance over the unit variance as estimated by the computer package. If there is no correlation between the w_i and y_i , there would be little difference between the two.

Chapter 11

STATE WEIGHTING PROCEDURES AND VARIANCE ESTIMATION¹

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11.1 OVERVIEW

The 1998 state assessment program included samples of fourth- and eighth-grade students in public and nonpublic schools. The samples of students were selected using a complex multistage design involving the sampling of students from participating schools within each state. See Chapter 4 for a detailed description of the state sample design. Tables providing weighted counts of assessed and excluded students appear in this chapter. Supplemental data is provided in Appendix B tables.

The weighting process involved the development of survey weights for students, using data from a periodic assessment of students for each participating school in each of the states, territories, and military jurisdictions of the U.S. Following the collection of assessment and background data from and about assessed and excluded students, the processes of deriving sampling weights and associated sets of replicate weights were carried out. The sampling weights are needed to make valid inferences from the student samples to the respective populations from which they were drawn. Replicate weights are used in the estimation of sampling variance, through a procedure known as jackknife repeated replication.

Weights were developed for students sampled at grades 4 and 8 for the state assessment in reading and at grade 8 for the state assessment in writing. Each student was assigned a weight to be used for making inferences about each state's students. This weight is known as the full-sample or overall sample weight. The full-sample weight contains five components. First, a base weight is established that is the inverse of the overall probability of selecting the sampled student. The base weight incorporates the probability of selecting a school and the student within a school. This weight is then adjusted for two sources of nonparticipation—school level and student level. These weighting adjustments seek to reduce the potential for bias from such nonparticipation by increasing the weights of students from schools similar to those schools not participating, and by increasing the weights of students similar to those students from within participating schools who did not attend the assessment session (or makeup session) as scheduled. Furthermore, the weights reflect the trimming of extremely large weights at each stage in the weighting process. For more detail on the implementation of these weighting steps, see Sections 11.2 and 11.3.

Section 11.4 addresses the effectiveness of the adjustments made to the weights using the procedures described in Section 11.3, examining characteristics of nonresponding schools and students, and investigating the extent to which nonrespondents differ from respondents in ways not accounted for

¹ Ibrahim Yansaneh and Keith F. Rust were responsible for the design and implementation of the weighting process for the 1998 NAEP state assessments. Jiahe Qian, with the assistance of Bruce Kaplan and in consultation with Eugene G. Johnson, was responsible for the planning, specification, and coordination of the state weighting at ETS. The statistical programming for this chapter was overseen by Bruce Kaplan and provided by Phillip Leung, Michael Narcowich, and Youn-Hee Lim.

in the weight adjustment procedures. Section 11.5 considers the distributions of the final student weights in each jurisdiction, and whether there were outliers that called for further adjustment.

In addition to the full-sample weights, a set of replicate weights was provided for each student. These replicate weights are used in calculating the sampling errors of estimates obtained from the data, using the jackknife repeated replication method. Full details of the method of using these replicate weights to estimate sampling errors are contained in the *Technical Report of the NAEP 1994 Trial State Assessment Program in Reading* (Mazzeo, Allen, & Kline, 1995) and in earlier NAEP state technical reports. Section 11.6 of this report describes how the sets of replicate weights were generated for the 1998 state assessment data. The methods of deriving these weights were aimed at reflecting the features of the sample design appropriately in each jurisdiction, so that when the jackknife variance estimation procedure is implemented, approximately unbiased estimates of sampling variance are obtained.

As detailed in Chapter 5, two different sets of administration rules indicated by the sample type field were used in the 1998 state assessment program for reading. ETS raked the student weights for each subset to force agreement with the totals estimated using both subsets combined. This raking process is detailed in Section 11.7. The process of trimming extremely large raked student weights is also described.

11.2 CALCULATION OF BASE WEIGHTS

11.2.1 Calculation of School Base Weights

Base weights were assigned to schools separately by grade and subject. The base weight assigned to a school was calculated as the reciprocal of the overall probability of selection of that school. For the grade 8 samples, the school base weight depended on the assessment subject, because some schools were so small that students were tested in only one subject. For “new” schools selected using the supplemental new school sampling procedures (see Chapter 4), the school base weight reflected the combined probability of selection of the district, and school within district.

Thus the base weight for school i was calculated as

$$w_i^{sch} = \begin{cases} \frac{1}{\text{Min}\{EHIT, 1\}} & \text{for originally sampled schools; and} \\ \frac{1}{\text{DISTPROB} \times \text{TCPNEW}} & \text{for new schools} \end{cases}$$

where EHIT denotes the expected number of hits during sample selection; DISTPROB denotes the selection probability assigned to each sampled school district for updating purposes; and TCPNEW denotes the school probability of selection of new and newly eligible schools.

In each jurisdiction, all schools included in the sample with certainty were assigned school base weights of unity. Schools sampled with certainty were sometimes selected more than once in the systematic sampling process. For example, a school that was selected twice was allocated twice the usual number of students for the assessments, or two sessions; a school that was selected three times was allocated three times the usual number of students for the assessments, or three sessions. All schools at grade 8 with less than 20 students were assigned one subject (see Chapter 4). For these schools, the base weight included a factor of 2. Additional details about the weighting process are given in the sections below.

11.2.2 Weighting New Schools

New public schools were identified and sampled through a two-stage sampling process, involving the selection of districts, and then of new schools within selected districts. This process is described in Chapter 4. There were two distinct processes used depending upon the size of the district.

Within each jurisdiction, public school districts were partitioned into “small” districts—those having at most three schools on the aggregate frame and no more than one fourth-, one eighth-, and one twelfth-grade school. The remainder of the districts were denoted as “large” districts. For the larger districts (i.e., those having multiple schools in at least one of grades 4, 8, and 12), a sample of districts was selected in each jurisdiction. Districts in the sample were asked to identify schools having grade 4 or grade 8 that were not included on the school frame. A sample of these newly identified schools was then selected. The base weight for these schools reflected the probability of two factors: (i) that the district was selected for this updating process; and (ii) that the school was included in the NAEP sample, having been identified as new by the district. If the school was in grade 8 but was only large enough to assess one subject, the base weight included a factor of 2, as described in Section 11.2.1. There were no schools identified in small districts (see Tables 4-8 and 4-9).

11.2.3 Trimming School Base Weights for New Schools

The base weights for new schools were evaluated for possible trimming. The process involved computing a hypothetical school base weight for the new schools as though they had been selected as part of the original sample. The hypothetical base weight was then compared to the actual base weight. Those schools with actual base weights greater than three times the hypothetical base weights had their base weights trimmed to three times their hypothetical base weights.

The trimming factor was computed as

$$f_i = \begin{cases} \frac{3}{RSCHBWT} & \text{for new schools with } RSCHBWT > 3; \text{ and} \\ 1 & \text{for other new schools and for non-new schools;} \end{cases}$$

where $RSCHBWT$ denotes the ratio of the school base weight to the hypothetical base weight.

The trimmed school base weight, denoted by w_i^{tsch} , was then defined as the product of the school base weight and the trimming factor. That is,

$$w_i^{tsch} = f_i \times w_i^{sch}.$$

Two schools had their weights trimmed as a result of this process. One of these schools is in a state that dropped out of the assessment. The other school has a trimming factor very close to 1, and therefore is not expected to have a significant impact on the weights.

11.2.4 Treatment of Substitute Schools

A school that replaced a refusing school (i.e., a substitute school) was assigned the weight of the refusing school. Thus the substitute school was treated as though it were the original school that it

replaced, for purposes of obtaining school base weights. The base weight was adjusted by a factor of 2 for grade 8 schools that were only large enough to assess one subject.

11.2.5 Calculation of Student Base Weights

Within the sampled schools, eligible students were sampled for assessment using the procedures described in Chapter 4. The within-school probability of selection for each subject therefore depended on the number of grade-eligible students in the school and the number of students selected for the assessment (usually 30). The within-school weights for sampled schools were adjusted to account for the fact that some schools operate twelve months per year and have only a proportion of their total enrollment attending school at any one time. For substitute schools, the within-school weights were further adjusted to compensate for differences in the grade enrollments of the substitute and the originally sampled (replaced) schools. In the case of eighth-grade schools, the within-school weight also incorporated a factor to account for (i) cases in which small schools were assigned at random to do one subject (reading or writing); and (ii) the random assignment of students to subjects. Thus, in general, the within-school student weight for the j^{th} student in school i was equal to:

$$W_{ij}^{\text{within}} = \frac{N_i}{n_i} \cdot K_{1i} \times K_{2i}$$

where

N_i = the number of grade-eligible students enrolled in the school, as reported at the time of student sampling; and

n_i = the number of students selected for the given subject.

The factors K_{1i} and K_{2i} in the formula for the within-school student weight generally apply to only a few schools in each jurisdiction. The factor K_{1i} adjusts the count of grade-eligible students in a substitute school to be consistent with the corresponding count of the originally sampled (replaced) school. Specifically, for substitute schools,

$$K_{1i} = \frac{E_i}{E_i^s}$$

with

E_i = the grade enrollment of the originally sampled (replaced) school; and

E_i^s = the grade enrollment of the substitute school.

For nonsubstitute schools, $K_{1i} = 1$.

The factor K_{2i} , which was applied to schools determined to be year-round schools, is defined as:

$$K_{2i} = \frac{1}{1 - p_{\text{off}}}$$

where p_{off} is the percentage of students enrolled in the school who were not scheduled to attend school at the time of assessment. For schools that are not year-round schools (the great majority), $K_{2i} = 1$.

The overall student base weight for a student j selected for the assessment for a given subject (reading or writing) in school i was obtained by multiplying the trimmed school base weight by the within-school student weight and therefore was computed as:

$$W_{ij}^{base} = W_i^{tsch} \times W_{ij}^{within} .$$

11.3 ADJUSTMENTS FOR NONRESPONSE

As mentioned earlier, the base weight for a student was adjusted by two factors: one to adjust for nonparticipating schools for which no substitute participated, and another to adjust for students who were invited to the assessment but did not attend the scheduled sessions (original or makeup).

11.3.1 Defining Initial School-Level Nonresponse Adjustment Classes

School-level nonresponse adjustment classes were created separately for public and nonpublic schools within each jurisdiction. For each set, these classes were defined as a function of their sampling strata as follows.

Public Schools. For each jurisdiction, except Virgin Islands, DoDEA/DDESS², and DoDEA/DoDDS³, the initial school nonresponse adjustment classes were formed by cross classifying the level of urbanization and minority status (see Chapter 4 for definitions of these characteristics). Where there was only one minority status category within a particular level of urbanization, a categorized version of median household income was crossed with the urbanization category. For this purpose within each level of urbanization, public schools were sorted by the median household income, and then divided into three groups of about equal size, representing low, middle, and high income areas. In Virgin Islands, there was no information on minority status or median household income. Thus, for Virgin Islands, at grade 4 a categorized version of estimated grade enrollment was used, and at grade 8, due to the small number of schools, all schools were placed in the same initial nonresponse adjustment cell. In all cases, for schools with SD/LEP students, sample type (whether accommodations were offered or not) was used in addition to the variables described above.

Department of Defense Education Activity/Department of Defense Domestic Elementary Schools (DoDEA/DDESS) and Department of Defense Education Activity/Department of Defense Dependents Schools (DoDEA/DoDDS). For the jurisdictions comprising DoDEA/DDESS and DoDEA/DoDDS schools, urbanization, median income, and metro status were not available. Therefore, the initial school nonresponse adjustment classes were defined by the state or district code, except for DoDEA/DDESS grade 8, which had only one adjustment cell due to the small number of schools. Again, sample type was used in addition to the variables described above.

Nonpublic Schools. For each jurisdiction (excluding Virgin Islands nonpublic schools), initial nonresponse adjustment classes were formed by cross classifying school type (Catholic and non-Catholic) and metropolitan status (the urban/rural nature of the place where the school is located). For Virgin Islands, urban/rural status was not available, so only school type was used. For schools with SD/LEP students, sample type was used in addition to the variables described above.

² Department of Defense Education Activity/Department of Defense Domestic Elementary and Secondary Schools

³ Department of Defense Education Activity/Department of Defense Dependents Schools

11.3.2 Constructing the Final Nonresponse Adjustment Classes

The objective in forming the nonresponse adjustment classes is to create as many classes as possible that are internally as homogeneous as possible, but such that the resulting nonresponse adjustment factors are not subject to large random variation. Consequently, all initial nonresponse adjustment classes deemed unstable were collapsed with suitable neighboring classes so that: (i) the combined class contained at least six sessions, and (ii) the resulting nonresponse adjustment factor did not exceed 1.35. (In a few cases, a factor in excess of 1.35 was permitted). When 100 percent of the public schools in a jurisdiction responded, no action was taken for a public-school adjustment class that contained fewer than six sessions. The same approach was used for nonpublic schools where 100 percent of the schools participated. Although there is clearly no adjustment for school nonresponse in these cases, this procedure could have an effect on the final definition of the student nonresponse adjustment classes (see Section 11.3.4).

Public Schools. For public schools, inadequate nonresponse adjustment classes were reinforced by collapsing adjacent levels of minority status (or median household income level if minority information was missing). Metropolitan and non-metropolitan schools were combined together in cases where there were less than six cooperating schools after collapsing across all levels of minority status (or median household income levels, if minority status information was missing) that were not mixed. No collapsing was done across sample type.

Nonpublic Schools. For nonpublic schools in all states except Virgin Islands, inadequate classes were reinforced by collapsing adjacent levels of metropolitan-area status within school type. Catholic and non-Catholic schools were kept apart to the extent possible, particularly when the only requirement to combine such schools was as a means of reducing the adjustment factors below 1.35. For nonpublic schools in Virgin Islands, Catholic and non-Catholic schools were collapsed together in order to form a stable nonresponse adjustment class.

11.3.3 School Nonresponse Adjustment Factors

The school-level nonresponse adjustment factor for the i^{th} school in the h^{th} class was computed as:

$$F_h^{(1)} = \frac{\sum_{i \in C_h} W_{hi}^{sch} \times E_{hi}}{\sum_{i \in C_h} W_{hi}^{sch} \times E_{hi} \times \delta_{hi}}$$

where

C_h = the subset of school records in class h ,

W_{hi}^{sch} = the base weight of the i^{th} school in class h ,

E_{hi} = the grade enrollment for the i^{th} school in class h ,

δ_{hi} = $\begin{cases} 1 & \text{if the } i^{\text{th}} \text{ school in adjustment class } h \text{ participated in the assessments; and} \\ 0 & \text{otherwise.} \end{cases}$

Both the numerator and denominator of the nonresponse adjustment factor contained only schools that were determined to have eligible students enrolled.

In the calculation of the above nonresponse adjustment factors, a school was said to have participated if:

- it was selected for the sample from the frame or from the lists of new schools provided by participating school districts, and student assessment data were obtained from the school; or
- the school participated as a substitute school and student assessment data were obtained (so that the substitute participated in place of the originally selected school).

The nonresponse-adjusted weight for the i th school in class h was computed as:

$$W_{hi}^{adj} = F_h^{(I)} \times W_{hi}^{sch} .$$

11.3.4 Student Nonresponse Adjustment Classes

The initial student nonresponse classes for assessed students were formed based on several variables. These variables are based on information from the sample design, age of the student, final collapsed school nonresponse cells, and the actual monitor status (or assigned monitor status, if the actual monitor status is not available; see Chapter 4) at the session level. The first of these was public/nonpublic strata and an indicator of whether or not a student was excluded from the assessment. Public/nonpublic strata were then cross classified by a variable created from combining SD/LEP status and the sample type for the student.

Within these categories, the initial student nonresponse adjustment classifications were defined further depending on the SD/LEP status of a student. For all schools except DoDEA/DDESS and DoDEA/DoDDS, if a student was SD or LEP, then the class was formed by urbanization cross classified by student age. Age was used to classify students into two groups (for grade 4, those born in September 1987 or earlier and those born in October 1987 or later, and for grade 8, those born in September 1983 or earlier and those born in October 1983 or later). If a student was neither SD nor LEP, then the initial nonresponse adjustment class was formed by urbanization cross classified by student age (as defined above), by the quality control monitoring status (see Chapter 4), then finally by minority status as collapsed for the school nonresponse. For the DoDEA/DDESS and DoDEA/DoDDS schools, the nonresponse adjustment classes for SD and LEP students was student age cross classified by the minority status variable as defined for the school nonresponse adjustment classes.

Following creation of these student nonresponse adjustment classes, all unstable classes were identified for possible collapsing with other classes. A class was considered to be unstable when either of the following conditions was true for the given class:

- number of responding eligible students was fewer than 20, or
- nonresponse adjustment factor exceeded 1.5.

All classes deemed unstable in the previous step were collapsed with other classes using the following rules:

- Do not collapse across public and nonpublic.
- Do not collapse across SD/LEP and non-SD–non-LEP.
- If within cells defined by the cross classification of public/nonpublic and SD-LEP/non-SD–non-LEP status, and sample type within the SD/LEP categories, all of the adjustments are one, no adjustments are made.
- Collapse across the last variable of the nonresponse adjustment cell only (i.e., collapse across geography for SD/LEP students in Department of Defense Education Activity (DoDEA) schools).

More collapsing was necessary only if the resulting classes had fewer than 15 responding eligible students. Collapsing then continued within the successive variables until the class size was no longer deficient or until a “set” boundary that could not be crossed was reached. In the case of SD or LEP students, more collapsing was done to eliminate the rare situation in which all students in a class were nonrespondents.

11.3.5 Student Nonresponse Adjustments

As described above, the student-level nonresponse adjustments for the assessed students were made within classes defined by the SD/LEP status, sample type, final school-level nonresponse adjustment classes, monitoring status of the school, and age group of the students. Subsequently, in each jurisdiction, the final student weight for the j^{th} student of the i^{th} school in class k was then computed as:

$$W_{kij}^{final} = W_i^{adj} \times W_{ij}^{within} \times F_k$$

where

W_i^{adj} = the nonresponse-adjusted school weight for school i ;

W_{ij}^{within} = the within-school weight for the j^{th} student in school i ; and

$$F_k = \frac{\sum_j W_{ij}}{\sum_j W_{ij} \delta_{kj}} .$$

In the above formulation, the summation included all students, j , in the k^{th} final (collapsed) nonresponse class. The indicator variable δ_{kj} had a value of 1 when the j^{th} student in adjustment class k participated in the assessment; otherwise, $\delta_{kj} = 0$.

For excluded students, no nonresponse adjustment procedures were applied because excluded students were not required to complete an assessment. In effect, all excluded students were considered respondents. Weights are provided for excluded students so as to estimate the size of this group and its population characteristics. Tables 11-1 through 11-6 summarize the unweighted and final weighted counts of assessed and excluded students in public and nonpublic schools for each jurisdiction, grade and subject.

Table 11-1
*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
 Grade 4 Public Schools, 1998 Reading State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Total	109,148	2,646,973	9,186	260,558	118,334	2,907,530
Alabama	2,559	56,372	239	4,922	2,798	61,294
Arizona	2,602	55,867	318	6,349	2,920	62,216
Arkansas	2,656	30,773	144	1,613	2,800	32,386
California	1,898	372,225	384	65,127	2,282	437,352
Colorado	2,656	49,221	195	3,309	2,851	52,530
Connecticut	2,607	38,543	379	4,971	2,986	43,514
Delaware	2,483	8,171	127	381	2,610	8,552
District of Columbia	2,464	4,691	284	504	2,748	5,194
DoDEA/DDESS	2,693	2,821	128	128	2,821	2,949
DoDEA/DoDDS	2,670	6,310	105	234	2,775	6,545
Florida	2,658	154,056	224	12,220	2,882	166,276
Georgia	2,733	96,499	179	6,058	2,912	102,557
Hawaii	2,742	13,548	144	676	2,886	14,224
Illinois	2,264	124,291	200	10,148	2,464	134,439
Iowa	2,339	33,263	171	2,324	2,510	35,587
Kansas	1,922	32,925	104	1,657	2,026	34,582
Kentucky	2,508	41,123	233	3,661	2,741	44,784
Louisiana	2,701	51,743	308	5,741	3,009	57,484
Maine	2,464	15,635	231	1,294	2,695	16,929
Maryland	2,344	57,644	204	4,894	2,548	62,538
Massachusetts	2,478	70,290	188	5,222	2,666	75,512
Michigan	2,416	116,655	179	8,068	2,595	124,723
Minnesota	2,425	61,069	94	2,179	2,519	63,248
Mississippi	2,591	36,430	118	1,565	2,709	37,995
Missouri	2,599	60,008	206	4,488	2,805	64,496
Montana	1,936	11,065	67	360	2,003	11,425
Nevada	2,732	20,105	388	2,652	3,120	22,757
New Hampshire	1,908	15,509	91	671	1,999	16,180
New Mexico	2,550	21,238	330	2,521	2,880	23,759
New York	2,318	192,009	196	16,046	2,514	208,055
North Carolina	2,628	87,078	265	8,222	2,893	95,300
Oklahoma	2,647	43,087	303	4,366	2,950	47,453
Oregon	2,550	36,836	192	2,597	2,742	39,433
Rhode Island	2,698	11,139	221	844	2,919	11,983
South Carolina	2,518	43,925	273	4,493	2,791	48,418
Tennessee	2,735	66,272	120	2,737	2,855	69,009
Texas	2,443	249,823	383	37,861	2,826	287,684

(continued)

Table 11-1 (continued)

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 4 Public Schools, 1998 Reading State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Utah	2,784	31,657	185	1,903	2,969	33,560
Virgin Islands	1,485	1,552	95	95	1,580	1,647
Virginia	2,723	76,981	228	6,123	2,951	83,104
Washington	2,491	67,261	137	3,662	2,628	70,923
West Virginia	2,568	19,137	271	1,868	2,839	21,005
Wisconsin	2,183	55,418	245	5,548	2,428	60,966
Wyoming	2,779	6,708	110	257	2,889	6,965

Table 11-2

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 8 Public Schools, 1998 Reading State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Total	93,223	2,441,495	6,068	151,260	99,291	2,592,754
Alabama	2,490	54,366	177	3,718	2,667	58,084
Arizona	2,529	53,001	183	3,376	2,712	56,377
Arkansas	2,489	32,855	170	2,056	2,659	34,911
California	2,182	364,480	159	23,908	2,341	388,388
Colorado	2,673	49,634	133	2,270	2,806	51,904
Connecticut	2,617	35,939	214	2,655	2,831	38,594
Delaware	2,081	8,220	122	399	2,203	8,618
District of Columbia	1,589	3,967	142	306	1,731	4,273
DoDEA/DDESS	630	1,324	28	56	658	1,380
DoDEA/DoDDS	2,221	4,746	61	122	2,282	4,868
Florida	2,545	147,121	145	7,863	2,690	154,984
Georgia	2,600	95,969	146	4,870	2,746	100,839
Hawaii	2,602	12,468	163	715	2,765	13,183
Illinois	2,148	127,567	117	6,459	2,265	134,026
Kansas	1,932	34,261	105	1,574	2,037	35,835
Kentucky	2,342	44,684	105	1,943	2,447	46,627
Louisiana	2,585	50,192	228	3,982	2,813	54,174
Maine	2,474	15,471	164	963	2,638	16,434
Maryland	2,178	54,030	123	2,738	2,301	56,768
Massachusetts	2,306	60,590	148	3,546	2,454	64,136
Minnesota	2,039	63,573	61	1,669	2,100	65,242
Mississippi	2,332	33,909	173	2,363	2,505	36,272
Missouri	2,632	63,890	142	3,288	2,774	67,178

(continued)

Table 11-2 (continued)

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 8 Public Schools, 1998 Reading State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Montana	1,946	12,021	82	412	2,028	12,433
Nevada	2,564	18,154	200	1,319	2,764	19,473
New Mexico	2,365	21,623	239	1,885	2,604	23,508
New York	1,923	181,223	208	17,019	2,131	198,242
North Carolina	2,595	81,637	222	6,317	2,817	87,954
Oklahoma	2,234	42,355	236	4,081	2,470	46,436
Oregon	2,294	38,419	105	1,498	2,399	39,917
Rhode Island	2,513	10,591	160	596	2,673	11,187
South Carolina	2,509	45,583	169	2,765	2,678	48,348
Tennessee	2,245	58,759	122	2,975	2,367	61,734
Texas	2,500	248,845	175	16,047	2,675	264,892
Utah	2,601	34,340	133	1,548	2,734	35,888
Virgin Islands	643	1,464	54	108	697	1,572
Virginia	2,592	73,995	187	4,824	2,779	78,819
Washington	2,323	69,342	104	2,856	2,427	72,198
West Virginia	2,537	20,565	239	1,756	2,776	22,321
Wisconsin	1,997	62,606	152	4,234	2,149	66,840
Wyoming	2,626	7,716	72	183	2,698	7,899

Table 11-3

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 8 Public Schools, 1998 Writing State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Total	91,996	2,429,504	4,872	124,329	96,868	2,553,832
Alabama	2,449	53,997	169	3,521	2,618	57,518
Arizona	2,499	53,315	162	2,992	2,661	56,307
Arkansas	2,462	32,430	162	1,945	2,624	34,375
California	2,157	359,589	155	23,418	2,312	383,007
Colorado	2,697	50,662	117	1,914	2,814	52,576
Connecticut	2,592	36,138	221	2,786	2,813	38,924
Delaware	2,119	8,265	80	269	2,199	8,533
District of Columbia	1,592	4,007	130	276	1,722	4,283
DoDEA/DDESS	650	1,362	19	38	669	1,400
DoDEA/DoDDS	2,182	4,704	34	68	2,216	4,772
Florida	2,574	150,236	130	7,085	2,704	157,321
Georgia	2,605	96,368	138	4,599	2,743	100,967

(continued)

Table 11-3 (continued)

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 8 Public Schools, 1998 Writing State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Hawaii	2,647	12,619	123	522	2,770	13,141
Illinois	2,145	129,782	95	5,263	2,240	135,045
Kentucky	2,341	44,823	66	1,145	2,407	45,968
Louisiana	2,653	51,962	158	2,882	2,811	54,844
Maine	2,508	15,659	148	860	2,656	16,519
Maryland	2,263	55,675	55	1,216	2,318	56,891
Massachusetts	2,399	62,177	131	3,091	2,530	65,268
Minnesota	1,980	63,353	65	1,884	2,045	65,237
Mississippi	2,401	35,008	130	1,708	2,531	36,716
Missouri	2,621	63,703	79	1,747	2,700	65,450
Montana	2,024	12,492	62	319	2,086	12,811
Nevada	2,553	18,325	181	1,167	2,734	19,492
New Mexico	2,426	22,277	192	1,476	2,618	23,753
New York	1,981	189,995	123	10,306	2,104	200,301
North Carolina	2,669	83,857	127	3,673	2,796	87,530
Oklahoma	2,258	42,418	239	4,054	2,497	46,472
Oregon	2,323	38,838	90	1,251	2,413	40,089
Rhode Island	2,516	10,584	129	488	2,645	11,072
South Carolina	2,469	45,294	160	2,619	2,629	47,913
Tennessee	2,275	59,184	104	2,536	2,379	61,720
Texas	2,530	250,733	169	15,518	2,699	266,251
Utah	2,588	34,091	117	1,355	2,705	35,446
Virgin Islands	614	1,412	59	118	673	1,530
Virginia	2,605	74,518	131	3,392	2,736	77,910
Washington	2,286	68,730	96	2,637	2,382	71,367
West Virginia	2,611	21,219	157	1,127	2,768	22,346
Wisconsin	2,006	62,152	105	2,895	2,111	65,047
Wyoming	2,726	7,551	64	169	2,790	7,720

Table 11-4

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 4 Nonpublic Schools, 1998 Reading State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Total	8,101	210,902	64	2,131	8,165	213,033
Arkansas	166	2,386	0	0	166	2,386
Colorado	225	4,599	2	54	227	4,653
Connecticut	263	4,214	2	26	265	4,241
Florida	274	20,284	1	67	275	20,351
Georgia	270	6,631	6	113	276	6,744
Hawaii	379	2,000	0	0	379	2,000
Illinois	355	25,870	3	194	358	26,064
Iowa	330	4,257	1	17	331	4,274
Louisiana	425	10,462	4	120	429	10,582
Maine	131	917	0	0	131	917
Maryland	297	8,750	3	115	300	8,865
Massachusetts	284	8,951	5	156	289	9,106
Michigan	265	15,375	3	160	268	15,535
Minnesota	338	8,426	1	22	339	8,448
Mississippi	224	3,763	0	0	224	3,763
Missouri	320	9,621	2	74	322	9,695
Montana	102	466	1	4	103	471
Nebraska	478	3,063	3	21	481	3,083
Nevada	150	962	1	6	151	968
New Mexico	249	2,350	8	83	257	2,433
New York	377	36,271	5	398	382	36,669
North Carolina	236	6,773	0	0	236	6,773
Rhode Island	382	1,506	0	0	382	1,506
South Carolina	227	3,951	2	31	229	3,983
Utah	107	681	0	0	107	681
Virgin Islands	426	461	0	0	426	461
Washington	175	4,965	0	0	175	4,965
West Virginia	125	973	0	0	125	973
Wisconsin	426	11,710	10	463	436	12,173
Wyoming	95	266	1	4	96	271

Table 11-5

*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
Grade 8 Nonpublic Schools, 1998 Reading State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Total	5,554	182,810	43	1,000	5,597	183,810
Arkansas	133	1,754	2	33	135	1,787
Arizona	176	6,072	6	223	182	6,294
California	295	44,862	0	0	295	44,862
Colorado	154	2,310	0	0	154	2,310
Connecticut	371	5,143	3	50	374	5,192
Florida	190	14,159	1	45	191	14,204
Georgia	185	7,090	0	0	185	7,090
Illinois	289	20,787	1	78	290	20,865
Louisiana	459	10,267	2	47	461	10,314
Massachusetts	185	5,986	0	0	185	5,986
Maryland	329	8,021	0	0	329	8,021
Maine	78	535	0	0	78	535
Missouri	297	7,199	0	0	297	7,199
Mississippi	0	0	0	0	0	0
Montana	147	646	0	0	147	646
North Carolina	238	5,032	3	75	241	5,107
Nebraska	366	2,950	4	33	370	2,982
New Mexico	170	1,471	9	67	179	1,539
Nevada	130	943	1	11	131	954
New York	351	29,209	3	244	354	29,453
Rhode Island	403	1,507	5	19	408	1,527
Virgin Islands	228	394	0	0	228	394
Washington	230	5,284	3	76	233	5,360
West Virginia	99	1,041	0	0	99	1,041
Wyoming	51	149	0	0	51	149

Table 11-6
*Unweighted and Final Weighted Counts of Assessed and Excluded Students by Jurisdiction,
 Grade 8 Nonpublic Schools, 1998 Writing State Samples*

Jurisdiction	Assessed		Excluded		Assessed and Excluded	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Total	5,593	173,497	27	960	5,620	174,457
Arkansas	140	2,143	1	13	141	2,155
Arizona	130	3,234	11	306	141	3,540
California	224	30,585	0	0	224	30,585
Colorado	137	2,916	0	0	137	2,916
Connecticut	240	4,151	2	30	242	4,180
Florida	213	13,409	1	42	214	13,451
Georgia	144	6,246	1	35	145	6,281
Illinois	314	23,623	0	0	314	23,623
Louisiana	580	11,449	0	0	580	11,449
Massachusetts	263	8,395	1	28	264	8,423
Maryland	350	9,168	0	0	350	9,168
Maine	95	831	0	0	95	831
Missouri	303	9,843	0	0	303	9,843
Montana	206	853	1	5	207	858
North Carolina	248	6,142	3	50	251	6,192
Nebraska	354	2,835	0	0	354	2,835
New Mexico	204	1,842	2	12	206	1,854
Nevada	108	730	0	0	108	730
New York	380	27,993	4	439	384	28,432
Rhode Island	434	1,680	0	0	434	1,680
Virgin Islands	193	383	0	0	193	383
Washington	155	3,824	0	0	155	3,824
West Virginia	117	977	0	0	117	977
Wyoming	61	246	0	0	61	246

11.4 CHARACTERISTICS OF NONRESPONDING SCHOOLS AND STUDENTS

In the previous section, procedures were described for adjusting the survey weights so as to reduce the potential bias of nonparticipation of sampled schools and students. To the extent that the characteristics of nonresponding schools or students are different from those of respondents in the same nonresponse adjustment class, potential for nonresponse bias remains. Recently, some studies related with this issue have been done, such as on the effects of excluded students in reporting results (see Donoghue, 2000).

This section examines the potential for remaining nonresponse bias in two related ways. First, weighted distributions for each grade and subject within each jurisdiction of certain characteristics of schools and students, both for the full sample and for respondents only, are discussed. This analysis is of necessity limited to those characteristics that are known for both respondents and nonrespondents, and hence, cannot directly address the question of nonresponse bias. The approach taken does reflect the reduction in bias obtained through the use of nonresponse weighting adjustments. As such, it is more

appropriate than a simple comparison of the characteristics of nonrespondents with those of respondents for each subject and jurisdiction.

The second approach involves modeling the probability that a school is a respondent, as a function of the nonresponse adjustment class to which the school belongs, together with other school characteristics. This was achieved using linear logistic regression models, with school response status as the dependent variable. By testing to see if the school characteristics add any predictive ability to the model over using the membership of the nonresponse adjustment class to make this prediction, researchers can obtain some insight into the remaining potential for nonresponse bias. If these factors are substantially marginally predictive, there is danger that significant nonresponse bias will remain. See Section 11.4.2 for details on how this approach was implemented.

11.4.1 Weighted Distributions of Schools Before and After School Nonresponse

To study the potential for nonresponse bias, Westat analysts compared the school characteristics before and after school nonresponse for public schools. For public schools, the variables for which means are presented are the percentage of Black students in the school, the percentage of Hispanic students, the median household income (1989) of the ZIP code area where the school is located, and the type of location. The first two variables were obtained from the sample frame, and hence from Quality Education Data, Inc., (QED) as described in Chapter 4. Median income was obtained from the 1990 Donnelly File. The variable designating type of location was derived for each sampled school using U.S. Bureau of Census data. The type of location variable has seven possible levels, which are defined in Chapter 4. Although this variable is not interval-scaled, the mean value does give an indication of the degree of urbanization of the population represented by the school sample (lower values for type of location indicate a greater degree of urbanization).

For public schools, the mean values of the variables, both before and after nonresponse, were calculated for all jurisdictions in reading grades 4 and 8, and writing grade 8. The means are weighted appropriately to reflect whether nonresponse adjustments have been applied (i.e., to respondents only) or not (to the full set of in-scope schools). The tables are presented in Appendix B. For each grade and subject, two sets of means are presented for these four variables. The first set shows the weighted mean derived from the full sample of in-scope schools selected for each subject, that is, respondents and nonrespondents (for which there was no participating substitute). The weight for each sampled school is the product of the school base weight and the grade enrollment. This weight therefore represents the number of students in the state represented by the selected school. The second set of means is derived from responding schools only, after school substitution. In this case the weight for each school is the product of the nonresponse-adjusted school weight and the grade enrollment of the original school, and therefore indicates the number of students in the jurisdiction represented by the responding school.

The characteristics of interest for nonpublic schools were the proportion of Catholic schools and the proportion of schools that are located in urban districts. As was done for public schools, two sets of means are presented: the means for the full sample and for the responding sample.

For both public and nonpublic schools, the differences between these sets of means give an indication of the potential for nonresponse bias that has been introduced by nonresponding schools with no participating substitute. For example, for grade 4 reading in Illinois, the mean percentage Black enrollment, estimated from the original sample of public schools, is 20.92 percent. The estimate from the responding schools is 26.33 percent. Thus there may be a slight bias in the results for Illinois because these two means differ. Note, however, that the differences in the two sets of mean values are generally very slight, at least in absolute terms, suggesting that it is unlikely that substantial bias has been introduced by schools that did not participate and for which no substitute participated. Of course in a

number of states there was no nonresponse at the school level (weighted participation rate is 100%), so that these sets of means are identical. Even in those jurisdictions where school nonresponse was relatively high (such as in New Hampshire grade 4 reading, Minnesota grade 8 writing, and Wisconsin grade 8 reading and writing), the absolute differences in means are slight. Occasionally the relative difference is large, for instance, the “Percent Black” in Illinois for both grade 4 and grade 8 reading (for public schools), or West Virginia grade 4 reading, Wyoming grade 4 reading, and New York grade 8 reading (for nonpublic schools). However, these are for small population subgroups, and thus are very unlikely to have a large impact on results for the jurisdiction as a whole.

11.4.2 Characteristics of Schools Related to Response

In an effort to evaluate the possibility that substantial bias remains as a result of school nonparticipation, following the use of nonresponse adjustments, a series of analyses were conducted on the response status for public schools. These analyses were restricted to those jurisdictions with a participation rate of below 90 percent (after substitution), because these are the jurisdictions where the potential for nonresponse bias was likely to be the greatest. Jurisdictions with an initial public-school response rate below 70 percent were not included, since NAEP does not report results for these jurisdictions because of concern about nonresponse bias. Information about this can be found in Chapters 17 and 21. Nonpublic schools were omitted from these analyses as well because of the small sample sizes involved, meaning that it is difficult to assess whether a potential for bias exists. Table 11-7 gives each participating states’ participation rate as included in the analysis for each grade and subject.

Table 11-7
*Jurisdictions Included in Logistic Regression Analysis
of the NAEP 1998 State Assessment*

Grade	Subject	Jurisdiction	Participation Rate
4	Reading	CA	80%
		IL	84%
		IA	84%
		KS	70%
		MD	88%
		MA	88%
		MN	86%
		MT	78%
		NH	70%
		NY	84%
		WA	89%
		WI	82%
8	Reading	CA	84%
		IL	81%
		KS	71%
		KY	87%
		MD	85%
		MA	89%
		MN	74%

(continued)

Table 11-7 (continued)
*Jurisdictions Included in Logistic Regression Analysis
of the NAEP 1998 State Assessment*

Grade	Subject	Jurisdiction	Participation Rate
8	Writing	MT	78%
		NY	77%
		OR	88%
		TN	89%
		WA	86%
		WI	73%
		CA	83%
		IL	80%
		KY	87%
		MD	86%
		MA	89%
		MN	74%
		MT	78%
		NY	77%
		OR	88%
		TN	89%
		WA	87%
WI	73%		

The approach used was to develop a logistic regression model to predict the probability of participation as a function of the nonresponse adjustment classes and other school characteristics. These models were developed for public schools in each of the jurisdictions and for each grade and subject specified in the above table. For the three grade-subject combinations, this resulted in the development of 37 models, which differ only in the number of nonresponse class levels that are included in the model. The number of final nonresponse adjustment classes varied by state. The logistic regression analysis was used to determine whether the response rates are significantly related to school characteristics, after accounting for the effect of the nonresponse class. Thus, “dummy” variables were created to indicate nonresponse class membership.

If there are k nonresponse classes within a jurisdiction, for nonresponse class $i = 1, \dots, k-1$, let

$$\begin{aligned}
 X_{ij} &= 1 \text{ if the school } j \text{ is classified in nonresponse class } i, \\
 &= 0 \text{ otherwise.}
 \end{aligned}$$

Within each jurisdiction, a logistic model was fitted to the data on public-school participation. In the model, the indicator variables for nonresponse class, and additional variables available for participating and nonparticipating schools alike were included. These variables are denoted as Y_{ij} , for i from 1 to 4 of school j . They were the percentage of Black students (Y_{1j}), the percentage of Hispanic students (Y_{2j}), the estimated enrollment for grades 4 and 8 of the school (Y_{3j}), and the median household income of the ZIP code area in which the school was located (Y_{4j}).

Let P_j denote the probability that school j is a participant, and let L_j denote the logit of P_j . That is,

$$L_j = \ln\left(\frac{P_j}{1 - P_j}\right).$$

The model fitted in each jurisdiction was the following:

$$L_j = A + \sum B_i X_{ij} + \sum C_i Y_{ij},$$

where A , B_i , and C_i are the coefficients of the logistic regression model.

Note that this model cannot be estimated if there are nonresponse classes in which all schools participated (so that no adjustments for nonresponse were made for those schools). Even though this analysis was restricted to those jurisdictions with relatively poor response, unestimatable cases occurred in a number of instances. When this happened, those (responding) schools in such classes were dropped from the analyses. Tables 11-8, through 11-10 show the proportion of the state public-school student population that is represented in the sample by schools from classes with less than 100 percent response for each grade and subject. Thus in grade 4 reading for Illinois, Kansas, and New Hampshire, there was some nonresponse within every adjustment class, whereas for the other nine states in grade 4, some portion of the population is not represented because schools were dropped from classes with no nonresponse. The states in which the entire student population is represented in the sample by schools from classes with less than 100% response are Illinois, Kansas, Minnesota, New York, and Wisconsin for grade 8 reading; and Illinois, Minnesota, New York, and Wisconsin for grade 8 writing. For the rest of the states, in both grades, some portion of the student population is not represented because schools were dropped from classes with no nonresponse.

The tables show that only three of the 37 models that contained all of the variables were significant. These were the models for grade 8 reading and writing for Illinois and Minnesota, all with p-values ranging from 0.0013 to 0.0184. Furthermore, the variables designating median household income and percent of Hispanic students were not significant for any of the 37 models. For the models for Minnesota grade 8 reading and writing, the only individual variable that was significant was the estimated grade enrollment, with p-values of 0.0009 and 0.0007 respectively. The only significant variable in the model for Illinois grade 8 writing was the percent of Black students, with a p-value of 0.0064. For some states, the overall model was not significant, but had individual variables that were significant. Examples of such states are Kansas grade 4, where the significant individual variable was the dummy variable corresponding to nonresponse class 4, which indicates for this state that the nonresponse classes significantly explain the variation in the response rates. In fact, Kansas was the only state in which the nonresponse class turned out to be a significant individual variable in the model. There were two models, for grade 8 reading and writing in the state of Wisconsin, in which the percent of Black students was significant even though the overall model was not.

As mentioned before, the variable designating the percent of Black students was clearly significant in the models for Wisconsin grade 8 reading and writing, and for Illinois grade 8 writing. This variable was used in forming nonresponse adjustment classes in these states. Note that the percent of Black students in Wisconsin is 7.99 for the grade 8 reading fill sample (see Table B-2 in Appendix B), and 9.56 for the respondents. This indicates that the final sample is somewhat over-representative of schools with relatively high proportion of Black students. Similar results hold for Illinois and Wisconsin grade 8 writing (see Table B-3 in Appendix B).

Table 11-8*Results of Logistic Regression Analysis of School Nonresponse - Grade 4, 1998 Reading State Samples*

Jurisdiction	School Participation Rate (%)	Percent of Population Covered by Model	Model with All Variables			Test: Y_{ij}'s = 0	
			Degrees of Freedom	Significance	Significant Variables	Degrees of Freedom	Significance
California	79.92	92.74	7	p=0.279	none	4	p=0.069
Iowa	83.94	80.13				4	
Illinois	84.13	100.00	12	p=0.309	none	4	p=0.839
Kansas	70.42	100.00	8	p=0.237	nonresponse cell 4, p=0.0390	4	p=0.309
Massachusetts	88.15	56.93				4	
Maryland	88.42	73.21				4	
Minnesota	85.82	55.45					
Montana	78.48	91.37				4	
New Hampshire	70.48	100.00	7	p=0.564	none	4	p=0.954
New York	83.92	82.25				4	
Washington	89.25	88.51				4	
Wisconsin	82.04	80.15				4	

Table 11-9
Results of Logistic Regression Analysis of School Nonresponse – Grade 8, 1998 Reading State Samples

Jurisdiction	School Participation Rate (%)	Percent of Population Covered by Model	Model with All Variables			Test: Y_{ij} 's = 0	
			Degrees of Freedom	Significance	Significant Variables	Degrees of Freedom	Significance
California	83.74	79.87					
Illinois	81.12	100.00	9	p=0.001	none	4	p=0.126
Kansas	70.60	100.00	9	p=0.748	none	4	p=0.353
Kentucky	87.32	72.63				4	
Massachusetts	89.20	77.59				4	
Maryland	85.45	81.62				4	
Minnesota	73.73	100.00	7	p=0.009	estimated grade enrollment, p=0.0009	4	p=0.003
Montana	77.81	79.74				4	
New York	77.27	100.00	8	p=0.198	none	4	p=0.282
Oregon	87.53	86.66				4	
Tennessee	89.03	60.09	8	p=0.203	none	4	p=0.083
Washington	86.13	95.22	11	p=0.701	none	4	p=0.897
Wisconsin	73.18	100.00	8	p=0.331	percent Black, p=0.0134	4	p=0.075

Table 11-10*Results of Logistic Regression Analysis of School Nonresponse – Grade 8, 1998 Writing State Samples*

Jurisdiction	School Participation Rate (%)	Percent of Population Covered by Model	Model with All Variables			Test: Y_{ij}'s = 0	
			Degrees of Freedom	Significance	Significant Variables	Degrees of Freedom	Significance
California	83.15	85.83				4	
Illinois	80.28	100.00	9	p=0.003	Percent of Black students, p=0.0064	4	p=0.067
Kentucky	87.14	73.23				4	
Massachusetts	89.28	77.42				4	
Maryland	86.42	81.62				4	
Minnesota	73.51	100.00	7	p=0.018	Estimated grade enrollment, p=0.0007	4	p=0.010
Montana	77.60	82.51				4	
New York	77.27	100.00	8	p=0.099	none	4	p=0.588
Oregon	87.53	86.66				4	
Tennessee	89.03	60.07	8	p=0.354	none	4	p=0.140
Washington	86.59	95.16	11	p=0.506	none	4	p=0.852
Wisconsin	72.91	100.00	8	p=0.246	Percent of Black students, p=0.0068	4	p=0.044

The only models in which the estimated grade-specific enrollment is significant are those for grade 8 reading and writing in the state of Minnesota. For public schools, this variable was not used in forming nonresponse adjustment classes in these states (it was used only for Virgin Islands). This variable is not shown in Tables B-1 through B-3 in Appendix B. However, the near-zero value of the coefficient for this variable in the logistic model indicates that small schools have as much chance of participating as larger schools, after controlling for the other predictor variables.

To determine if the variables other than the nonresponse adjustment class variables added explanatory power to the model, all variables except the nonresponse adjustment class variables were tested collectively to see if the estimates of the parameters were equal to zero. This evaluates whether, taken as a group, the Y variables are significantly related to the response probability, after accounting for nonresponse class. The results are shown in the last columns of Tables 11-8 through 11-10. Only three of the 37 tests were significant. The rest of the tests were not significant, which suggests that the variables did not add to the model after accounting for the nonresponse adjustment classes, even though on occasion an individual variable was significant. These results hold for Kansas grade 4 reading, where the full model was not significant, but the dummy variable representing nonresponse class 4 was significant. This seems to indicate for Kansas, the nonresponse adjustment classes alone explain the significant variations in the probability of participation in the grade 4 assessments.

The results of the analysis indicate that on occasion there were differences between the originally sampled schools and those that participated, that were not fully removed by the process of creating nonresponse adjustments. Although these effects were not dramatic, they were sometimes statistically significant, and in these instances, this was reflected in noticeable differences in population characteristics between respondents against those who were originally sampled. However, the evidence presented here does not permit valid speculation about the likely size or even direction of the bias in achievement results in reading and writing for the few states where these sample differences are noticeable. The results and details of the logistic regression analysis are given in Westat's *Sampling Activities and Field Operations for 1998 NAEP* (Gray, et al., 2000).

11.4.3 Weighted Distributions of Students Before and After Student Absenteeism

To check the difference between the full sample and the assessed samples, Westat analysts studied weighted distributions of students before and after student absenteeism. For the public schools in each jurisdiction, subject, and grade, Westat calculated the weighted sampled percentages of students by gender (male) and race/ethnicity (White, not Hispanic; Black, not Hispanic; Hispanic), as well as SD/LEP status for the full sample of students (after student exclusion), and for the assessed sample. See tables in Appendix B. The mean student age in months is also computed on each basis. In those jurisdictions having adequate school response rates to permit reporting of combined results for public- and nonpublic-school students, these statistics were calculated for both grades and subjects for all students, public and nonpublic.

The weight used for the full sample was the adjusted student base weight, defined in Section 11.2.5. The weight for the assessed students was the final student weight, defined in Section 11.3.5. The difference between the estimates of the population subgroups is an estimate of the bias in estimating the size of the subgroup, resulting from student absenteeism.

Care must be taken in interpreting these results. First, note that there is generally little difference in the proportions estimated from the full sample and those estimated from the assessed students. While this is encouraging, it does not eliminate the possibility that bias exists within the state as a whole, within the results for gender and race/ethnicity subgroups, or within other subgroups. Second, when differences do exist, they

cannot be used to indicate the likely magnitude or direction of the bias with any reliability. For example, in Illinois the percentages of White and Black students in the full sample are respectively 56.87 and 22.24 percent. For assessed students, these percentages are 61.97 for White students and 18.61 for Black students. This indicates that White students are overrepresented and Black students are underrepresented in the sample of assessed students. While these differences raise the possibility that some bias exists, it is not appropriate to speculate on the magnitude of this bias by considering the assessment results for White or Black students in comparison to other students in the state. The reason is that the overrepresented White students or underrepresented Black students may not be typical of students that were included in the sample. Similarly, White students who are disproportionately underrepresented or Black students who are disproportionately overrepresented may not be typical either, because not all students within the same race/ethnicity group receive the same student nonresponse adjustment.

One other feature to note is that, for assessed students, information about the student's gender and race/ethnicity is provided by the student, whereas for absent students, it is provided by the school. Evidence from past NAEP assessments (see, for example, Rust & Johnson, 1992) indicates that there can be substantial discrepancies between those two sources, particularly for grade 4 Hispanic students.

11.5 VARIATION IN WEIGHTS

After computing the full-sample weights, an analysis was conducted on the distribution of the final student weights for each grade-subject combination in each jurisdiction. The analysis was intended to (1) check that the various weight components had been derived properly in each jurisdiction, and (2) examine the impact of variability in the sample weights on the precision of the sample estimates, both for the jurisdiction as a whole and for major subgroups within the jurisdiction.

The analysis was conducted by looking at the distribution of the final student weights for the assessed students in each jurisdiction, grade, and subject separately by public and nonpublic schools. Two key aspects of the distribution were considered in each case: the coefficient of variation (equivalently, the relative variance) of the weight distribution, and the presence of outliers—cases whose weights were several standard deviations away from the median weight.

It was important to examine the coefficient of variation of the weights, because a large coefficient of variation reduces the effective size of the sample. Assuming that the variables of interest for individual students are uncorrelated with the weights of the students, the sampling variance of an estimated average or aggregate is approximately $(1 + V_W^2)$ times as great as the corresponding sampling variance based on a self-weighting sample of the same size, where V_W is the coefficient of variation of the weights. Outliers, or cases with extreme weights, were examined because the presence of such outliers was an indication of the possibility that an error was made in the weighting procedure, and because it was likely that a few extreme cases would contribute substantially to the size of the coefficient of variation.

In most jurisdictions, the coefficients of variation were 35 percent or less, both for the whole sample and for all subgroups. This means that the variation in sampling weights had little impact on the precision of sample estimates.

A few relatively large student weights were observed in some jurisdictions for reading at both grades 4 and 8. An evaluation was made of the impact of trimming these largest weights back to a level consistent with the largest remaining weights found in the state and grade. Such a procedure produced an appreciable reduction in the size of the coefficient of variation for these weights, and hence this trimming was implemented. Westat

judged that this procedure had minimal potential to introduce bias, while the reduction in the coefficient of variation of the weights gave rise to an appreciable decrease in sampling error for all jurisdictions, grades, and subjects.

11.6 CALCULATION OF REPLICATE WEIGHTS

A replication method known as jackknife was used to estimate the variance of statistics derived from the full sample. The process of replication involves repeatedly selecting portions of the sample (replicates) and calculating the desired statistic (replicate estimates). The variability among the calculated replicate estimates is then used to obtain the variance of the full-sample estimate.

In each jurisdiction, replicates were formed in two steps. First, each school was assigned to one of a maximum of 62 replicate groups, each group containing at least one school. In the next step, a random subset of schools (or, in some cases, students within schools) in each replicate group was excluded. The remaining subset and all schools in the other replicate groups then constituted one of the 62 replicates. The process of forming these replicate groups, core to the process of variance estimation, is described below.

11.6.1 Defining Replicate Groups and Forming Replicates for Variance Estimation

Replicate groups were formed separately for public and nonpublic schools. Once replicate groups were formed for all schools, students were then assigned to their respective school replicate groups. The formation of replicate groups was done separately for SD/LEP and non-SD/LEP students. For SD/LEP students, there was an additional set of replicate group assignments for reading at each grade for states with certainty schools. Different replicate group assignments were needed for SD/LEP students in reading because only SD/LEP students that were not offered accommodations will be used in reporting for reading. This essentially meant that certainty schools were treated as noncertainty schools for replication of SD/LEP students in reading.

In general, public schools (except schools in Virgin Islands and DoDEA/DDESS grade 8) were assigned to replicates as follows: Noncertainty schools were first paired and then each pair was assigned to its own replicate group. Large certainty schools were assigned to two replicate groups each, and small certainty schools were assigned to one replicate group each.

For nonpublic schools, the assignment of replicate groups was as follows: If the sample of noncertainty schools was small, each noncertainty school was randomly assigned to its own replicate group. If the sample of noncertainty schools was large enough, this procedure was implemented separately for Catholic and non-Catholic noncertainty schools. Then, large certainty schools were assigned to two replicate groups each, and small certainty schools were assigned to one replicate group each.

Replicate group assignments for schools in Virgin Islands and DoDEA/DDESS grade 8 were handled differently because of small sample sizes. Nonpublic schools in Virgin Islands were assigned to replicate groups using the procedure described in the preceding paragraph for nonpublic schools. For public schools in Virgin Islands and DoDEA/DDESS grade 8, schools were assigned to a number of replicate groups proportional to the estimated grade-specific enrollment.

The details about the replicate group assignments for all schools are given below.

11.6.1.1 Replicate Group Assignments for Non-SD/LEP Students

All Public Schools, Except Schools in Virgin Islands and DoDEA/DDESS Grade 8. Noncertainty schools were sorted by jurisdiction according to sample type. Then within sample type, the schools were sorted by new school status and the order in which they were selected from the sampling frame. The schools were then grouped in pairs. Where there was an odd number of schools, the last replicate group contained three schools instead of two. If a jurisdiction had more than 62 pairs, the pair numbering would have gone up to 62 and then from 62 backwards as needed; however, this did not happen in 1998.

Each of the certainty public schools was assigned to one replicate group or to more replicate groups if its size was large. If a school was selected three or more times in the sampling process, then it was assigned to two replicate groups. Here, schools were sorted by the estimated grade enrollment prior to group assignments. Again, depending on the jurisdiction, a maximum of 62 certainty groups was formed. The group numbering resumed from the last group number used for the noncertainty schools if the total number of public-school groups was less than 62. Otherwise, the numbering started from 62 down to the number needed for the last certainty public school. In jurisdictions where all schools were certainty schools and the total number of public schools (that is, certainty schools) exceeds 62, the numbering of the groups started at 62 and went downward to 1, and then from 1 up to the number needed for the last certainty school. For instance, in the District of Columbia grade 4 reading, which had only 114 certainty schools (no noncertainty schools), group numbers started at 62 and continued down to 1 and then from 1 up to 52. In the District of Columbia grade 8 reading, which had only 37 certainty schools, the group numbers went from 1 to 55. Eighteen of the 37 certainty schools in the District of Columbia were selected three or more times and thus were assigned to two replicate groups. A replicate was formed by randomly deleting one half of the students in a certainty school from the sample. For certainty schools that were assigned to two replicate groups, the students were split equally between four “halves,” two halves in each of the two replicate groups. This process was repeated for each certainty school.

The purpose of this scheme was to assign as many replicates to a jurisdiction’s public schools as permitted by the design, to a maximum of 62. When more than 62 replicates were assigned, the procedure ensured that no subset of the replicate groups (pairs of noncertainty schools, individual certainty schools, or groups of these) was substantially larger than the other replicate groups. The aim was to maximize the degrees of freedom available for estimating variances for public-school data.

A single replicate estimate was formed by dropping one member assigned to a particular replicate group. This process was repeated successively across replicate groups, giving up to 62 replicate estimates.

Nonpublic Schools. Replicate groups for noncertainty nonpublic schools were formed in one of the two methods described below. It depends on the number of nonpublic noncertainty schools, such as the number of available noncertainty Catholic or non-Catholic schools. If any of the following conditions was true for a given jurisdiction, then the subsequent steps were taken to form replicate groups. Here, the numbering started at 62 down to the last needed number.

Conditions for Method 1:

- fewer than 11 nonpublic noncertainty schools; or
- fewer than 2 Catholic noncertainty schools; or
- fewer than 2 non-Catholic noncertainty schools.

Steps for Method 1:

- all schools were grouped into a single replicate group;
- schools were randomly sorted; and
- starting with the second school, replicates were formed by consecutively leaving out one of the remaining $n - 1$ schools; each replicate included the first school.

When a given jurisdiction did not match conditions of the first method (i.e., when all of the following conditions were true), then the preceding steps were repeated separately for two groups, one consisting of Catholic schools and one consisting of non-Catholic schools.

Conditions for Method 2:

- more than 10 nonpublic noncertainty schools; and
- more than 1 Catholic noncertainty school; and
- more than 1 non-Catholic noncertainty school.

For jurisdictions with certainty nonpublic schools (Hawaii and Virgin Islands for reading at grade 4; Rhode Island, Virgin Islands, and Wyoming for both reading and writing at grade 8) each school was assigned to one or more groups. If a school was selected three or more times in the sampling, it was assigned to two groups. Prior to this assignment, schools were sorted in descending order of the estimated grade enrollment. The group numbering started at the last number where the noncertainty nonpublic schools ended. A replicate was formed by randomly deleting one half of the students in a certain school from the sample. For the certainty schools that were assigned to two replicate groups, the students were split equally between four “halves,” two halves in each of two replicate groups. This was repeated for each certainty school.

Again, the aim was to maximize the number of degrees of freedom for estimating sampling errors for nonpublic schools (and indeed for public and nonpublic schools combined) within the constraint of forming 62 replicate groups. Where a jurisdiction had a significant contribution from both Catholic and non-Catholic schools, Westat ensured that the sampling error estimates reflected the stratification on this characteristic.

Virgin Islands. For Virgin Islands, where all schools were selected with certainty, nonpublic schools were assigned in the usual way, and public schools were assigned to a number of replicate groups proportional to their estimated grade enrollment.

DoDEA/DDESS Grade 8. Schools in the DoDEA/DoDDS grade 8 sample were assigned to a number of replicate groups proportional to their estimated grade enrollment. Schools in all other Department of Defense Domestic Dependent Elementary and Secondary Schools (DoDEA/DDESS) and DoDEA/DoDDS samples were assigned to replicate groups following the general rules described above for all public schools. In grade 8 writing, the one noncertainty school was treated like a certainty school.

11.6.1.2 Replicate Group Assignments for SD/LEP Students in Reading

For reading certainty schools with non-SD/LEP students were reassigned to replicate groups. The replicate group assignments for all other schools remained the same. As mentioned before, there were no certainty schools for SD/LEP replication for reading (certainty schools were treated as noncertainty schools). The reassignment of replicate groups for certainty schools was implemented as follows.

All Public Schools, Except those in Virgin Islands and DoDEA/DDESS Grade 8. The assignment of schools to replicate groups was done separately for various subgroups of the reading SD/LEP sample. For public noncertainty schools, the schools were first sorted by jurisdiction according to sample type. Within each sample type, the schools were sorted by their new school status and sample selection order. In those jurisdictions where the number of replicate groups for public schools did not exceed 62, the schools in the sorted list were assigned group numbers, two to a group, beginning where the previous assignments for the public non-certainty schools with non-SD/LEP students stopped. If the number of schools was odd, then the last three schools were assigned to the same replicate group. If the number of public noncertainty schools exceeded 62, then the group numbering started at 62 and proceeded backwards, assigning pairs of schools to the same replicate group. If the number of public noncertainty schools to be assigned was odd, the last three schools were assigned to the same replication group. For Arkansas, Illinois, and Mississippi grade 4; and Florida, North Carolina, and Tennessee grade 8, there was only one public noncertainty school with SD/LEP students assessed in reading. This school was assigned to the last replicate group used for the public noncertainty schools with non-SD/LEP students. If there was an odd number of such schools, then the triple was broken up into two doubles and the school in question was assigned to the last double.

Nonpublic Schools. Nonpublic schools were assigned to replicate groups as follows. For noncertainty schools, the replicate group assignments were the same for Catholic and non-Catholic schools, and used one of the two methods described below.

Method 1. If the conditions for Method 1 for non-SD/LEP replication were met, then the first school in the sorted list was not assigned to any group. The second and subsequent schools were assigned to one replicate group each, beginning where the numbering for nonpublic noncertainty schools in the non-SD/LEP replication stopped. The numbering then proceeded backwards.

Method 2. If the conditions for Method 2 for non-SD/LEP replication were met, then the procedure for Method 1 was implemented for Catholic and non-Catholic schools separately. Catholic schools were assigned first, starting from where the numbering for nonpublic noncertainty non-Catholic schools in the non-SD/LEP replication stopped. The numbering for the non-Catholic schools started from where that for the Catholic schools stopped.

Virgin Islands. In Virgin Islands, nonpublic schools were assigned to replicate groups in the usual way, and the public schools were assigned in the same way as nonpublic schools.

DoDEA/DDESS Grade 8. In the DoDEA/DDESS grade 8, schools were assigned to replicate groups in exactly the same way as for nonpublic schools.

11.6.2 School-Level Replicate Weights

As mentioned above, each replicate sample had to be reweighted to compensate for the dropped unit(s) defining the replicate. This reweighting was done in two stages. At the first stage, the i^{th} school included in a particular replicate r was assigned a replicate-specific school base weight defined as:

$$W_{ri}^{sch} = K_r \times W_i^{sch},$$

where W_i^{sch} is the full-sample base weight for school i , and, for public schools,

$$K_r = \begin{cases} 1.5 & \text{if school } i \text{ was contained in a "pair" consisting of 3 units} \\ & \text{from which the complimentary member was dropped to form replicate } r, \\ 2 & \text{if school } i \text{ was contained in a pair consisting of 2 units} \\ & \text{from which the complimentary member was dropped to form replicate } r, \\ 0 & \text{if school } i \text{ was dropped to form replicate } r, \text{ and} \\ 1 & \text{if school } i \text{ was not assigned to replicate } r, \text{ or if school } i \text{ was a certainty.} \end{cases}$$

For nonpublic schools, Method 1:

$$K_r = \begin{cases} \frac{n}{n-1} & \text{if school } i \text{ was not dropped in forming replicate } r, \text{ and} \\ 0 & \text{if school } i \text{ was dropped to form replicate } r. \end{cases}$$

For nonpublic schools, Method 2 (with n_1 Catholic schools and n_2 non-Catholic schools):

$$K_r = \begin{cases} \frac{n_1}{n_1-1} & \text{if school } i \text{ was Catholic not dropped from replicate } r, \\ & \text{and replicate } r \text{ was formed by dropping a Catholic school;} \\ 1 & \text{if school } i \text{ was Catholic and replicate } r \text{ was formed by dropping a non-Catholic school;} \\ \frac{n_2}{n_2-1} & \text{if school } i \text{ was non-Catholic not dropped from replicate } r, \\ & \text{and replicate } r \text{ was formed by dropping a non-Catholic school;} \\ 1 & \text{if school } i \text{ was dropped to form replicate } r. \end{cases}$$

Using the replicate-specific school base weights, W_{ri}^{sch} , the school-level nonresponse weighting adjustments were recalculated for each replicate r . That is, the school-level nonresponse adjustment factor for schools in replicate r and adjustment class k was computed as:

$$F_{rk} = \frac{\sum_{i \in C_k} (W_{rki}^{sch} \times E_{ki})}{\sum_{i \in C_k} (W_{rki}^{sch} \times E_{ki} \times \delta_{rki})}$$

where

C_k = the subset of school records in adjustment class k ,

W_{rki}^{sch} = the replicate- r base weight of the i^{th} school in class k , and

E_{ki} = the grade enrollment for the i^{th} school in class k .

In the above formulation, the indicator variable δ_{rki} had a nonzero value only when the i^{th} school in replicate r and adjustment class k participated in the assessment. The replicate-specific nonresponse-adjusted school weight for the i^{th} school in replicate r in class k was then computed as:

$$W_{rki}^{adj} = F_{rk} \times W_{rki}^{sch} \times \delta_{rki} .$$

11.6.3 Student-Level Replicate Weights

The replicate-specific adjusted student base weights were calculated by multiplying the replicate-specific adjusted school weights as described above by the corresponding within-school student weights. That is, the adjusted student base weight for the j^{th} student in adjustment class k in replicate r was initially computed as:

$$W_{rkij} = W_{rki}^{adj} \times W_{ij}^{within}$$

where

W_{rki}^{adj} = the nonresponse-adjusted school weight for school i in school adjustment class k and replicate r , and

W_{ij}^{within} = the within-school weight for the j^{th} student in school i .

The final replicate-specific student weights were then obtained by applying the student nonresponse adjustment procedures to each set of replicate student weights. Let F_{rk} denote the student-level nonresponse adjustment factor for replicate r and adjustment class k . The final replicate r student weight for student j in school i in adjustment class k was calculated as:

$$W_{rkij}^{final} = F_{rk} \times W_{rki}^{adj} \times W_{ij}^{within}$$

Finally, estimates of the variance of sample-based estimates were calculated as:

$$Var_{JK}(\hat{x}) = \sum_{r=1}^{62} (\hat{x}_r - \hat{x})^2$$

where

$$\hat{x}_r = \sum_{i,j} W_{rkij}^{final} \times x_{rkij}$$

denotes an estimated total based on replicate r (one of 62 replicates), and \hat{x} denote the corresponding estimate based on the full sample. The standard error of an estimate \hat{x} is estimated by taking the square root of the estimated variance, $\text{Var}_{JK}(\hat{x})$.

11.7 RAKING OF WEIGHTS

Raking (also known as *iterative proportional fitting*) is done in place of poststratification. Unlike poststratification, it is performed iteratively to two or more different distributions of a population total (i.e., gender and age). It is typically used in situations in which the interior cells of a cross-tabulation are either unknown, or some sample sizes in the cells are too small for efficient estimation. In raking, the marginal population totals, $N_{i.}$ and $N_{.j}$ are known (i.e., age and gender population counts); however, the interior cells of the cross-tabulation N_{ij} (the age by gender cells) are estimated from the sample by \hat{N}_{ij} , where these are the sum of weights in the cells.

The raking algorithm proceeds by proportionally scaling the \hat{N}_{ij} , such that the following relations are satisfied:

$$\sum_j \hat{N}_{ij} = N_{i.}$$

and

$$\sum_i \hat{N}_{ij} = N_{.j}.$$

The 1998 state NAEP assessment program used two different sets of administration rules indicated by sample type 2 and sample type 3 (see Chapter 4). To enable ETS to analyze the reading assessment omitting the SD/LEP students with sample type 3, the SD/LEP student weights were raked separately for the two subsets as defined by sample type. Note that only the weights of SD/LEP students in public schools were raked. Agreement was forced with totals estimated using both of the subsets combined for each of the sample types. The purpose of this was to enhance the reliability (i.e., reduce the sampling error) of estimates produced by using information about student characteristics from the whole sample to enhance the estimates. Because of small sample sizes, the weights of nonpublic SD/LEP students were not raked but were assigned a crude raking factor of 2. Non-SD/LEP students were assigned dummy raking factors of 1.

11.7.1 Raking Dimensions for Full Sample Student Weights

Public Schools. Five variables were used for the raking dimensions. These variables included two levels of SD (SD/non-SD), two levels of LEP (LEP/non-LEP), two levels of gender, five levels of race (White and other; Black; Hispanic; Asian or Pacific Islander; and American Indian or Alaskan Native), and two levels of age. The age variable was defined as follows: for grade 4, those born in August 1987 or earlier and those born in September 1987 or later; and for grade 8, those born in August 1983 or earlier and those born in September 1983 or later. Collapsing of levels was done so that no level of a single dimension contained fewer than 30 students for a state and grade.

Control totals were obtained by summing the trimmed nonresponse-adjusted student weights for each level of the collapsed raking dimension. The final collapsed levels that were used for the raking dimensions, for each jurisdiction and grade, can be found in Tables B-13 and B-14 in Appendix B. An “X” indicates that the variable was not collapsed for raking. A dash indicates that all levels were combined, and thus, the variable was not used as a raking dimension. An asterisk for the race variable indicates that all other levels of the dimension were combined into one level. For example in fourth grade for Florida, there are three levels of race: White, Hispanic, and all others combined.

Nonpublic Schools. Because of the small numbers of nonpublic-school students, no raking was carried out. A factor of 2 was applied to the weights for the SD/LEP students, since only half the SD/LEP sample was used for analysis.

11.7.2 Raking Student Replicate Weights

The replicate weights for the public SD/LEP students were raked similarly. Control totals for each replicate were calculated based on the totals for the replicate weights. The levels of the raking dimensions that were used for the replicates were the same collapsed levels as used for the full sample student weights. For the nonpublic schools, again a factor of 2 was applied to the replicate weights of the SD/LEP students.

11.8 APPROXIMATING THE SAMPLING VARIANCE USING DESIGN EFFECTS

As in Chapter 10’s discussion of variance estimation (see Section 10.5), *design effects* (Kish & Frankel, 1974) of mean proficiencies across the state samples were calculated for demographic subgroups for reading grades 4 and 8, and writing grade 8, respectively. The design effect for a statistic is the ratio of the actual variance of the statistic (taking the sample design into account) over the conventional variance estimate based on a simple random sample with the same number of elements. The design effect is the inflation factor to be applied to the conventional variance estimate in order to adjust error estimates based on simple random sampling assumptions, thus accounting approximately for the effect of the sample design. Design effects provide an approximate approach to compute variance from NAEP data for secondary analysis. Moreover, they provide a measure to analyze the efficiency of a study design.

Since most of the analyses conducted by NAEP are based on the results of scaling models that summarize performance of students across a learning area, the design effects are based on these scale scores. A key statistic of interest is the estimated mean scale score of a subgroup of the population. Table 11-11 gives the average design effects for state-level mean scale score, averaged across all jurisdictions by grade for the 1998 state reading and writing assessments.

The table shows that the design effects are predominantly larger than 1, indicating that standard variance estimation formulas will be generally too small, usually markedly so. Although the design effects appear somewhat different for certain subgroups of the population, they are similar enough (at least within a subject and grade) to select an overall composite value that is adequate for most purposes. In choosing a composite design effect, some consideration must be made about the relative consequences of overestimating the variance as opposed to underestimating the variance. (For details, see descriptions in Section 10.5.2.) Table 11-12 gives the composite values of mean, median, and upper quartile of the distribution of design effects for mean state scale scores by grade for the 1998 state reading and writing assessments.

Table 11-11
*Average Design Effects by Demographic Subgroup
 for 1998 Mean State Reading and Writing Scale Scores
 Averaged Across State Samples**

Subgroup	Grade 4 Reading	Grade 8 Reading	Grade 8 Writing
Total	3.81	3.25	3.21
Male	2.54	2.45	2.29
Female	2.49	2.13	2.28
White	2.74	2.44	2.61
Black	1.87	2.17	2.03
Hispanic	2.06	1.70	1.44
Asian/Pacific Islander	1.48	1.42	1.21
Other race/ethnicity	1.47	1.81	1.34
Urban	5.00	4.44	4.37
Suburban	4.07	3.63	3.02
Rural	3.37	3.12	2.75
PARED < HS	1.28	1.52	1.13
PARED = HS	1.39	1.76	1.28
PARED > HS	1.59	1.49	1.59
PARED = College	2.91	2.18	2.40
PARED = Unknown	1.68	1.43	1.11
Public school	3.84	3.13	2.95

* Design effects are based on the conventional and jackknife variances of subgroup means of the first plausible values of scale score.

Table 11-12
*Mean, Median, and Upper Quartile of the 1998 Across-State Average
 Design Effects for Mean State Scale Score
 (Distribution Across Demographic Subgroups)**

Subgroup	Grade 4 Reading	Grade 8 Reading	Grade 8 Writing
Upper Quartile	3.37	3.12	2.75
Mean	2.56	2.36	2.18
Median	2.49	2.17	2.28

* Design effects are based on the conventional and jackknife variances of subgroup means of the first plausible values of scale score.

Chapter 12

SCALING PROCEDURES¹

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12.1 INTRODUCTION

The primary method by which results from the 1998 National Assessment of Educational Progress (NAEP) were disseminated is scale score reporting. The National Assessment Governing Board (NAGB) provides achievement levels that are used to give judgmental meaning to the scale. With scaling methods, the performance of a sample of students in a subject area or subarea can be summarized on a single scale or series of scales even when different students have been administered different items. This chapter presents an overview of the scaling methodologies employed in the analyses of the data from NAEP surveys in general. Details of the scaling procedures specific to the subject areas of reading, writing, and civics are presented in Chapters 14 through 24.

12.2 BACKGROUND

The basic information from an assessment consists of the responses of students to the items presented in the assessment. For NAEP, these items are constructed to measure performance on sets of objectives developed by nationally representative panels of learning-area specialists, educators, and concerned citizens. Satisfying the objectives of the assessment and ensuring that the tasks selected to measure each goal cover a range of difficulty levels typically require many items. Depending on the subject areas, a mixture of multiple-choice, short constructed-response, and extended constructed-response items were used. To reduce student burden, each assessed student was presented only a fraction of the full pool of items through multiple matrix sampling procedures.

The most direct manner of presenting the assessment results is to report separate statistics for each item. However, because of the vast amount of information, having separate results for each of the items in the assessment pool hinders the comparison of the general performance of subgroups of the population. Item-by-item reporting masks similarities in trends and subgroup comparisons that are common across items.

An obvious summary of performance across a collection of items is the average of the separate item scores. The advantage of averaging is that it tends to cancel out the effects of peculiarities in items that can affect item difficulty in unpredictable ways. Furthermore, averaging makes it possible to compare more easily the general performances of subpopulations.

Despite their advantages, there are a number of significant problems with mean item scores. First, the interpretation of these results depends on the selection of the items; the selection of easy or difficult items could make student performance appear to be overly high or low. Second, the average

¹ Nancy L. Allen and James E. Carlson shared responsibility for the psychometric and statistical analysis of the 1998 national and state NAEP data with John R. Donoghue. Eugene G. Johnson contributed to the design of NAEP and to discussions of sampling issues. Previously he was responsible for the psychometric and statistical analysis of NAEP data. Robert J. Mislevy is a technical consultant contributing in the area of item response theory.

score is related to the particular items comprising the average, so that direct comparisons in performance between subpopulations require that those subpopulations have been administered the same set of items. Third, because this approach limits comparisons to average scores on specific sets of items, it provides no simple way to report trends over time when the item pool changes. Finally, direct estimates of parameters or quantities such as the proportion of students who would achieve a certain score across the items in the pool are not possible when every student is administered only a fraction of the item pool. While the average score across all items in the pool can be readily obtained (as the average of the individual item scores), statistics that provide distributional information, such as quantiles of the distribution of scores across the full set of items, cannot be readily obtained without additional assumptions.

These limitations can be overcome by the use of response scaling methods. If several items require similar skills, the regularities observed in response patterns can often be exploited to characterize both respondents and items in terms of a relatively small number of variables. These variables include a respondent-specific variable, called *scale score*, which quantifies a respondent's tendency to answer items correctly (or, for multipoint items, to achieve a certain item score) and item-specific variables that indicate characteristics of the item such as its difficulty, effectiveness in distinguishing between individuals with different levels of scale score, and the chances of a very low scale score respondent correctly answering a multiple-choice item. (These variables are discussed in more detail in the next section.) When combined through appropriate mathematical formulas, these variables capture the dominant features of the data. Furthermore, all students can be placed on a common scale, even though none of the respondents takes all of the items within the pool. Using the common scale, it becomes possible to discuss distributions of scale score in a population or subpopulation and to estimate the relationships between scale score and background variables.

It is important to point out that any procedure of aggregation, from a simple average to a complex multidimensional scaling model, highlights certain patterns at the expense of other potentially interesting patterns that may reside within the data. Every item in a NAEP survey is of interest and can provide useful information about what United States students know and can do. The choice of an aggregation procedure must be driven by a conception of just which patterns are salient for a particular purpose.

The scaling for the national main reading, mathematics, science, U.S. history, geography, and music assessments is carried out separately within purposes of reading, mathematics content strands, fields of science, themes, or content areas as specified in the framework. Originally, this scaling within subareas was done because it was anticipated that different patterns of performance or different trends over time might exist for these essential subdivisions of the subject areas. By creating a separate scale for each of these content areas, potential differences in subpopulation performance between the content areas are preserved.

The creation of a series of separate scales to describe performance within a subject area does not preclude the reporting of a single index of overall performance in the subject area—that is, an overall subject–area composite. A composite is computed as the weighted average of the content–area scales, where the weights correspond to the relative importance given to each content area as defined by the framework. The composite provides a global measure of performance within the subject area, while the constituent content area scales allow the measurement of important interactions within educationally relevant subdivisions of the subject area.

For all other national main assessment subjects the framework documents specify a single (unidimensional) scale. The long-term trend scales for reading, writing, mathematics, and science are also scaled as if they were unidimensional.

12.3 SCALING METHODOLOGY

This section reviews the scaling models employed in the analyses of NAEP data and the multiple imputation or “plausible values” methodology that allows such models to be used with NAEP’s sparse item-sampling design. The reader is referred to Mislevy (1991) for an introduction to plausible values methods and a comparison with standard psychometric analyses to Beaton and Johnson (1992), Donoghue (1993), and Mislevy, Johnson and Muraki (1992), and for additional information on how the models are used in NAEP, and to Rubin (1987) for the theoretical underpinnings of the approach. It should be noted that the imputation procedure used by NAEP is a mechanism for providing plausible values for the unobserved proficiencies and not for filling in blank responses to background or cognitive variables.

While the NAEP procedures were developed explicitly to handle the characteristics of NAEP data, they build on other research, and are paralleled by other researchers. See, for example, Andersen (1980); Dempster, Laird, and Rubin (1977); Engelen (1987); Hoijtink (1991); Laird (1978); Lindsey, Clogg, and Grego (1991); Little and Rubin (1983, 1987); Rubin (1987, 1991); Tanner and Wong (1987); and Zwiderman (1991).

12.3.1 The Scaling Models

Three distinct scaling models, depending on item type and scoring procedure, are used in the analysis of NAEP data. Each of the models is based on item response theory (IRT; e.g., Lord, 1980). Each is a “latent variable” model, defined separately for each of the scales, which expresses respondents’ tendencies to achieve certain scores (such as correct/incorrect) on the items contributing to a scale as a function of a parameter that is not directly observed, called score (θ) on the scale.

A three-parameter logistic (3PL) model is used for the multiple-choice items (which are scored correct or incorrect). The fundamental equation of the 3PL model defines the probability that a person whose score on scale k is characterized by the *unobservable* variable θ_k will respond correctly to item j as:

$$P(x_j = 1 | \theta_k, a_j, b_j, c_j) = c_j + \frac{(1 - c_j)}{1 + \exp[-1.7a_j(\theta_k - b_j)]} \equiv P_{j1}(\theta_k), \quad (12.1)$$

where

- x_j is the response to item j , 1 if correct and 0 if not;
- a_j where $a_j > 0$, is the slope parameter of item j , characterizing its sensitivity to scale score;
- b_j is the threshold parameter of item j , characterizing its difficulty; and
- c_j where $0 \leq c_j < 1$, is the lower asymptote parameter of item j , reflecting the chances of students of very low scale score selecting the correct option.

Further define the probability of an incorrect response to the item as

$$P_{j0} \equiv P(x_j = 0 | \theta_k, a_j, b_j, c_j) = 1 - P_{j1}(\theta_k). \quad (12.2)$$

A two-parameter logistic (2PL) model is used for the short constructed-response items that were scored correct or incorrect. The form of the 2PL model is the same as Equations (12.1) and (12.2), with the c_j parameter fixed at zero.

In addition to the multiple-choice and other two-category items, a number of extended constructed-response items are presented in NAEP assessments. The long-term trend and national main writing assessments include only extended constructed-response items, but most other national main and state assessments include some extended constructed-response items. Each of these items is scored on a multipoint scale with potential scores ranging from 0 to 3, from 0 to 4, or from 0 to 5. For some subjects, short constructed-response items are scored on a three-point scale (0–2) as well as on a two-category scale. Items that are scored on a multipoint scale are referred to as polytomous items, in contrast with the multiple-choice and short constructed-response items, which are scored correct or incorrect and referred to as dichotomous items.

The polytomous items are scaled using a generalized partial credit model (Muraki, 1992). The fundamental equation of this model is the probability that a person with score θ_k on scale k will have, for the j^{th} item, a response x_j that is scored in the i^{th} of m_j ordered score categories:

$$P(x_j = i | \theta_k, a_j, b_j, d_{j,1}, \dots, d_{j, m_j - 1}) = \frac{\exp\left(\sum_{v=0}^i 1.7a_j(\theta_k - b_j + d_{j,v})\right)}{\sum_{g=0}^{m_j-1} \exp\left(\sum_{v=0}^g 1.7a_j(\theta_k - b_j + d_{j,v})\right)} \equiv P_{ji}(\theta_k) \quad (12.3)$$

where

- m_j is the number of categories in the response to item j ;
- x_j is the response to item j , with possibilities 0, 1, ..., $m_j - 1$;
- a_j is the slope parameter;
- b_j is the item location parameter characterizing overall difficulty; and
- $d_{j,i}$ is the category i threshold parameter (see below).

Indeterminacies in the parameters of the above model are resolved by setting $d_{j,0} = 0$ and setting $\sum_{i=1}^{m_j-1} d_{j,i} = 0$. Muraki (1992) points out that $b_j - d_{j,i}$ is the point on the θ_k scale at which the plots of $P_{j,i-1}(\theta_k)$ and $P_{ji}(\theta_k)$ intersect and so characterizes the point on the θ_k scale at which the response to item j has equal probability of falling in response category $i-1$ and falling in response category i .

When $m_j = 2$, so that there are two score categories (0,1), it can be shown that $P_{ji}(\theta_k)$ of Equation (12.3) for $i = 0,1$ corresponds respectively to $P_{j0}(\theta_k)$ and $P_{j1}(\theta_k)$ of the 2PL model [(Equations (12.1) and (12.2) with $c_j = 0$)].

Close examination of the 3PL and generalized partial credit models indicate that both models have a linear indeterminacy of the theta scale. In other words, if the item parameters are estimated in a

different metric, the value of θ_k could be transformed to make Equations (12.1) and (12.3) true. For the purposes of reporting item parameter estimates and other intermediary estimates, the linear indeterminacies apparent in Equations (12.1) and (12.3) may be resolved by an arbitrary choice of the origin and unit size in a given scale. In most cases, a provisional scale standardizing the theta distribution to have mean 0 and standard deviation 1 is employed. Final results for each content area are linearly transformed from the θ scale to a 0-to-500 or a 0-to-300 scale, as described in the subject area chapters in this report.

A basic assumption of item response theory is the conditional independence of the responses by an individual to a set of items, given the individual's scale score. That is, conditional on the individual's θ_k , the joint probability of a particular response pattern $\underline{x} = (x_1, \dots, x_n)$ across a set of n items is simply the product of terms based on Equations (12.1), (12.2), and (12.3):

$$P(\underline{x}|\theta_k, \text{item parameters}) = \prod_{j=1}^n \prod_{i=0}^{m_j-1} P_{ji}(\theta_k)^{u_{ji}} \quad (12.4)$$

where $P_{ji}(\theta_k)$ is of the form appropriate to the type of item (dichotomous or polytomous), m_j is equal to 2 for the dichotomously scored items, and u_{ji} is an indicator variable defined by

$$u_{ji} = \begin{cases} 1 & \text{response } x_j \text{ is in category } i \\ 0 & \text{otherwise} \end{cases}$$

It is also typically assumed that response probabilities are conditionally independent of background variables (y), given θ_k , or

$$P(\underline{x}|\theta_k, \text{item parameters}, y) = p(\underline{x}|\theta_k, \text{item parameters}). \quad (12.5)$$

After \underline{x} is observed, Equation (12.4) can be viewed as a likelihood function, and provides a basis for inference about θ_k or about item parameters. Estimates of item parameters were obtained by the NAEP BILOG/PARSCALE program, which combines Mislevy and Bock's (1982) BILOG and Muraki and Bock's (1991) PARSCALE computer programs², and which concurrently estimates parameters for all items (dichotomous and polytomous). Donoghue (1993) reports on the effect of having both dichotomous and polytomous items within a scale. The NAEP BILOG/PARSCALE program has also been adapted to make use of student sampling weights. The item parameters are then treated as known in subsequent calculations. In NAEP analyses, for subject areas with multiple scales (i.e., national main reading, mathematics, science, U.S. history, geography, and music), the parameters of the items constituting each of the separate scales are estimated independently of the parameters of the other scales. Once items are calibrated in this manner, a likelihood function for the scale score θ_k is induced by a vector of responses to any subset of calibrated items, thus allowing θ_k -based inferences from matrix samples. The likelihood function for the scale score θ_k is called the *posterior distribution of the thetas for each student*.

In almost all NAEP IRT analyses, missing responses at the end of each block of items a student was administered are considered "not reached," and are treated as if they had not been presented to the respondent. Missing responses to dichotomous items before the last observed response in a block are considered intentional omissions, and are treated as fractionally correct at the value of the reciprocal of

² See Muraki and Bock (1999) for the current version of PARSCALE.

the number of response alternatives, if the item was a multiple-choice item. These conventions are discussed by Mislevy and Wu (1988). With regard to the handling of not-reached items, Mislevy and Wu found that ignoring not-reached items introduces slight biases into item parameter estimation when not-reached items are present and speed is correlated with ability. With regard to omissions, they found that the method described above provides consistent limited-information maximum likelihood estimates of item and ability parameters under the assumption that respondents omit only if they can do no better than responding randomly.

Missing responses to polytomous items before the last observed response in a block are also considered intentional omissions and scored so that the response is in the lowest category. Occasionally, extended constructed-response items are the last item in a block of items. Because considerably more effort is required of the student to answer these items, nonresponse to an extended constructed-response item at the end of a block is considered an intentional omission (and scored as the lowest category) unless the student also did not respond to the item immediately preceding that item. In that case, the extended constructed-response item is considered not reached and treated as if it had not been presented to the student. In the case of the main and state writing assessment, there is a single extended constructed-response item in each separately-timed block. In the writing assessment when a student does not respond to the item or when the student provides an off-task response, the response is also treated as if the item had not been administered.

Scaling areas in NAEP are determined a priori by grouping items into content areas for which overall performance is deemed to be of interest, as defined by the frameworks developed by the National Assessment Governing Board (NAGB). A scale score θ_k is defined a priori by the collection of items representing that scale. What is important, therefore, is that the models capture salient information in the response data to effectively summarize the overall performance on the content area of the populations and subpopulations being assessed in the content areas.

The local independence assumption embodied in Equation (12.4) implies that item response probabilities depend only on θ and the specified item parameters, and not on the position of the item in the booklet, the content of items around an item of interest, or the test-administration and timing conditions. However, these effects are certainly present in any application. The practical question is whether inferences concerning aggregate performance in the scaling area that are based on the IRT probabilities obtained via Equation (12.4) are robust with respect to the ideal assumptions underlying the IRT model. Our experience with the 1986 NAEP reading anomaly (Beaton & Zwick, 1990) has shown that for measuring small changes over time, changes in item context and speededness conditions can lead to unacceptably large random error components. These can be avoided by presenting items used to measure change in identical test forms, with identical timings and administration conditions. Thus, we do *not* maintain that the item parameter estimates obtained in any particular booklet configuration are appropriate for other conceivable configurations. Rather, we assume that the parameter estimates are context-bound. This is the reason that the long-term trend booklets and administration procedures have not changed since the early 1980s and only a limited number of blocks of items are released after each national main assessment cycle. It was also the reason we prefer common population equating to common item equating whenever equivalent random samples are available for linking. In common item equating, items are assumed to be measuring exactly the same thing for two or more populations, despite any differences in context or administration. In common population equating, results for two or more samples from the same population are matched to one another when linking the scales. Therefore, the data from the state assessment are calibrated separately from the national NAEP data. In this case, the administration procedures differ somewhat between the state assessment and the national NAEP.

Although the IRT models are employed in NAEP only to summarize performance, a number of checks are made to detect serious violations of the assumptions underlying the models. Checks are made

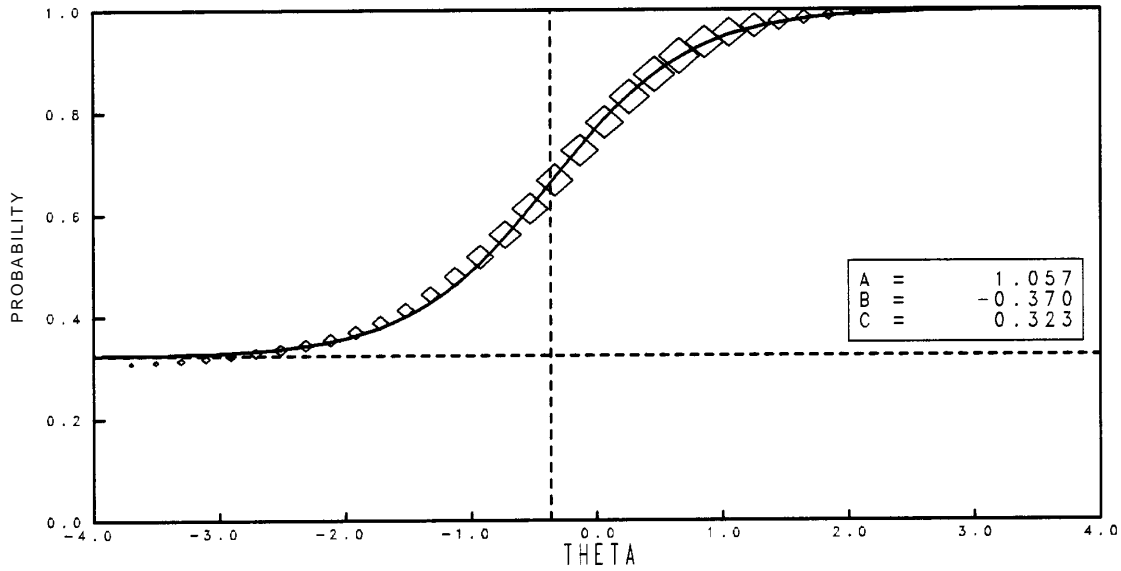
to detect multidimensionality of the construct being measured and certain condition dependencies. DIF analyses are used to examine issues of dimensionality, and what are called χ^2 statistics in the IRT literature are used to flag responses with serious departures from the IRT model. DIF analysis methodologies are discussed in Chapter 9. The latter statistics might better be called item fit statistics since they do not really have χ^2 distributions. These checks include comparisons of empirical and theoretical item response functions to identify items for which the IRT model may provide a poor fit to the data. When warranted, remedial efforts, such as collapsing categories of polytomous items or combining items into a single item, are made to mitigate the effects of such violations on inferences.

In practice, PARSCALE item fit statistics are used as a way to identify items that need further examination. Most of the statistics of this type that are available for use in this setting have distributions that are unknown. Therefore, they cannot be used for final decisions about the fit of the items to the IRT model. Because of the lack of statistical tests for IRT model fit, the fit of the IRT models to the observed data was examined within each scale by comparing the empirical item response functions (IRFs) with the theoretical curves. The primary means of accomplishing this is to generate plots of empirical versus theoretical item response curves. The theoretical curves are plots of the response functions based on the estimates of the item parameters. The empirical proportions are calculated from the posterior distributions of the thetas for each student who received the item. For dichotomous items, the sum of the values of the posterior distributions at a point on the theta scale for each student who answered an item correctly plus the sum of a fractional portion of the values of the posterior distribution at that point on the theta scale for each student who omitted the item is parallel in meaning to the number of students who actually answered the item correctly plus a fraction of the number of students who omitted the item. The sum of the values of the posterior distributions for all students receiving the item at each point on the theta scale is parallel in meaning to the empirical number of students at that point on the theta scale who received the item. The plotted values are sums of these individual posteriors at each point on the theta scale for those who got the item correct plus a fraction of the omitters divided by the sum of the posteriors of those administered the item, in the case of dichotomous items, and for those who scored in the category of interest over the sum for those who received the item, in the case of polytomous items.

As an example, Figure 12-1 contains a plot of the empirical and theoretical IRFs for a dichotomous item from the 1994 NAEP national main reading assessment. In the plot, the horizontal axis represents the theta (score) scale, the vertical axis represents the probability of a correct response. The solid curve is the theoretical IRF based on the item parameter estimates and Equation (12.1). The centers of the diamonds represent the empirical proportions correct as described above. The size of the diamonds are proportional to the sum of the posteriors at each point on the theta scale for all of those who received the item; this is related to the number of students contributing to the estimation of that empirical proportion correct.

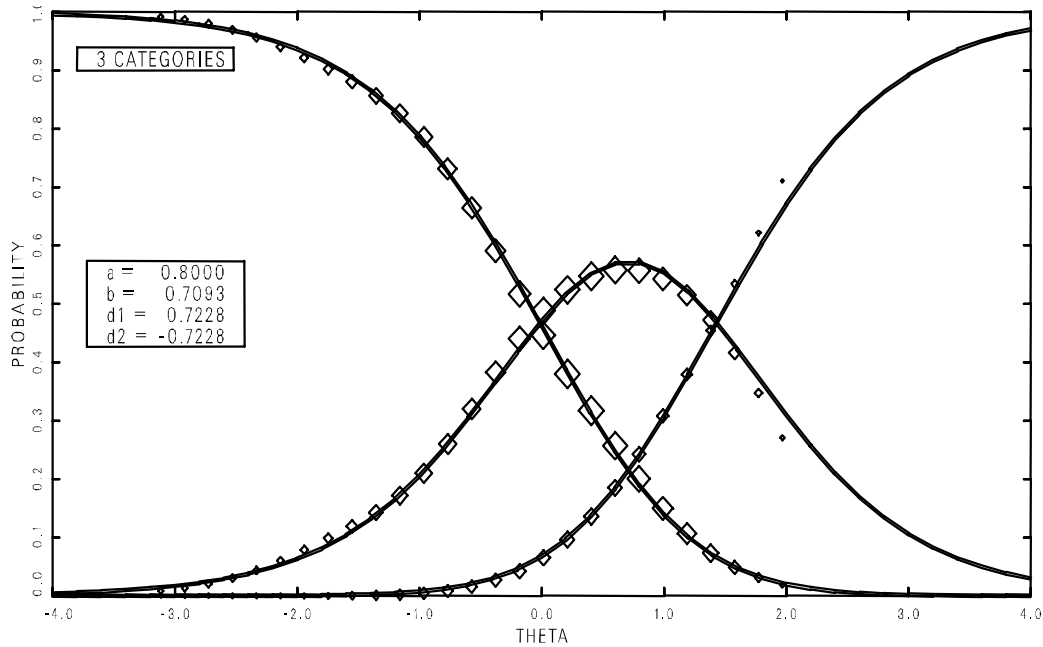
Figure 12-2 contains a plot of the empirical and theoretical IRFs for a polytomous item from the 1997 Arts (Theatre) National Assessment. As for the dichotomous item plot in Figure 12-1, the horizontal axis represents the score scale, but the vertical axis represents the probability of having a response fall in each category. The solid curves are the theoretical IRFs based on the item parameter estimates and Equation (12.3). The centers of the diamonds represent the empirical proportions of students with responses in each category and are proportional to the sum of the posteriors at each point on the theta scale for the students who received the item.

Figure 12-1
*Dichotomous Item (R016102) Exhibiting Good Model Fit**



* Diamonds represent 1994 age 13/grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

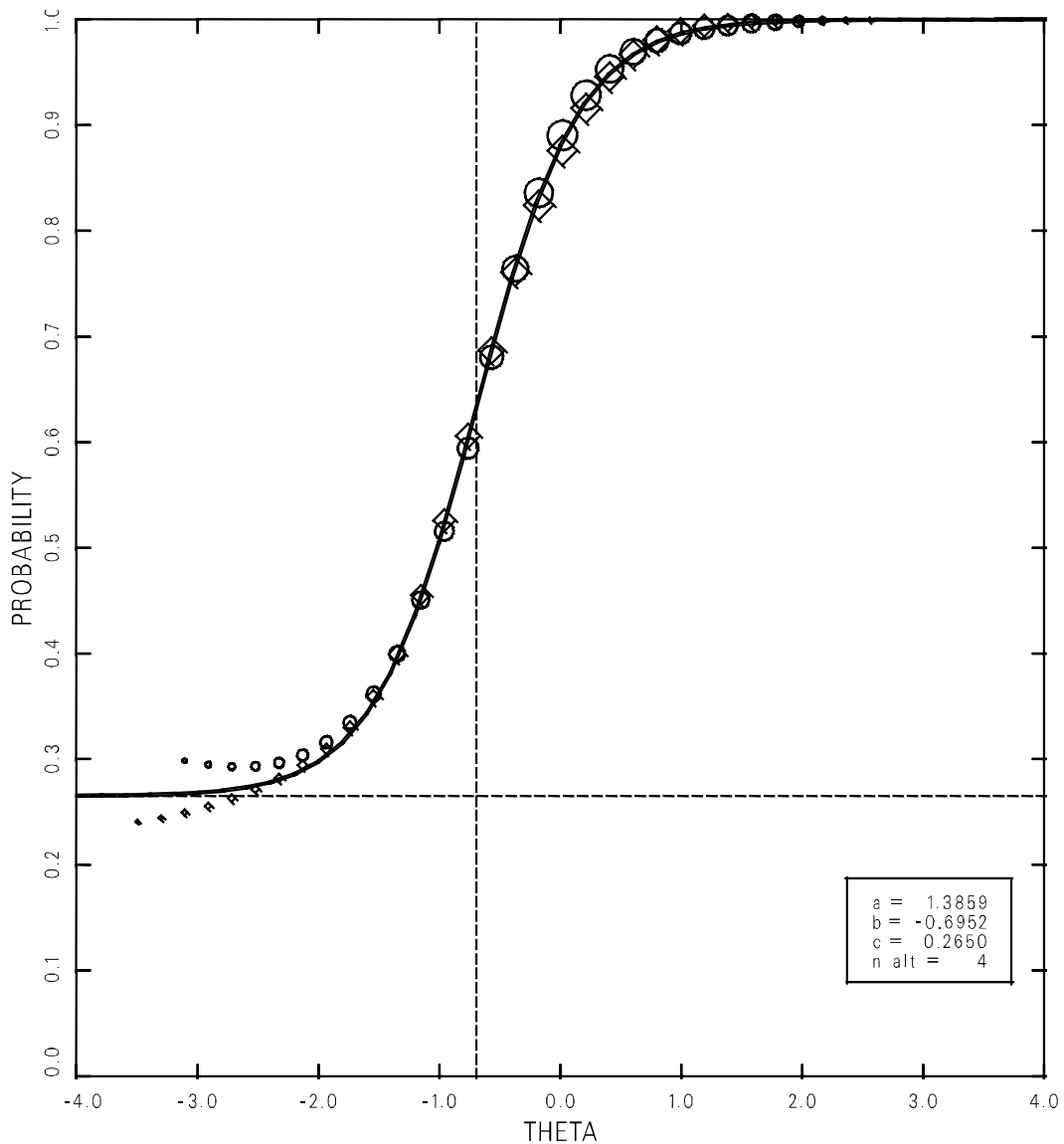
Figure 12-2
*Polytomous Item (HC00004) Exhibiting Good Model Fit**



* Diamonds represent 1997 grade 8 arts assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

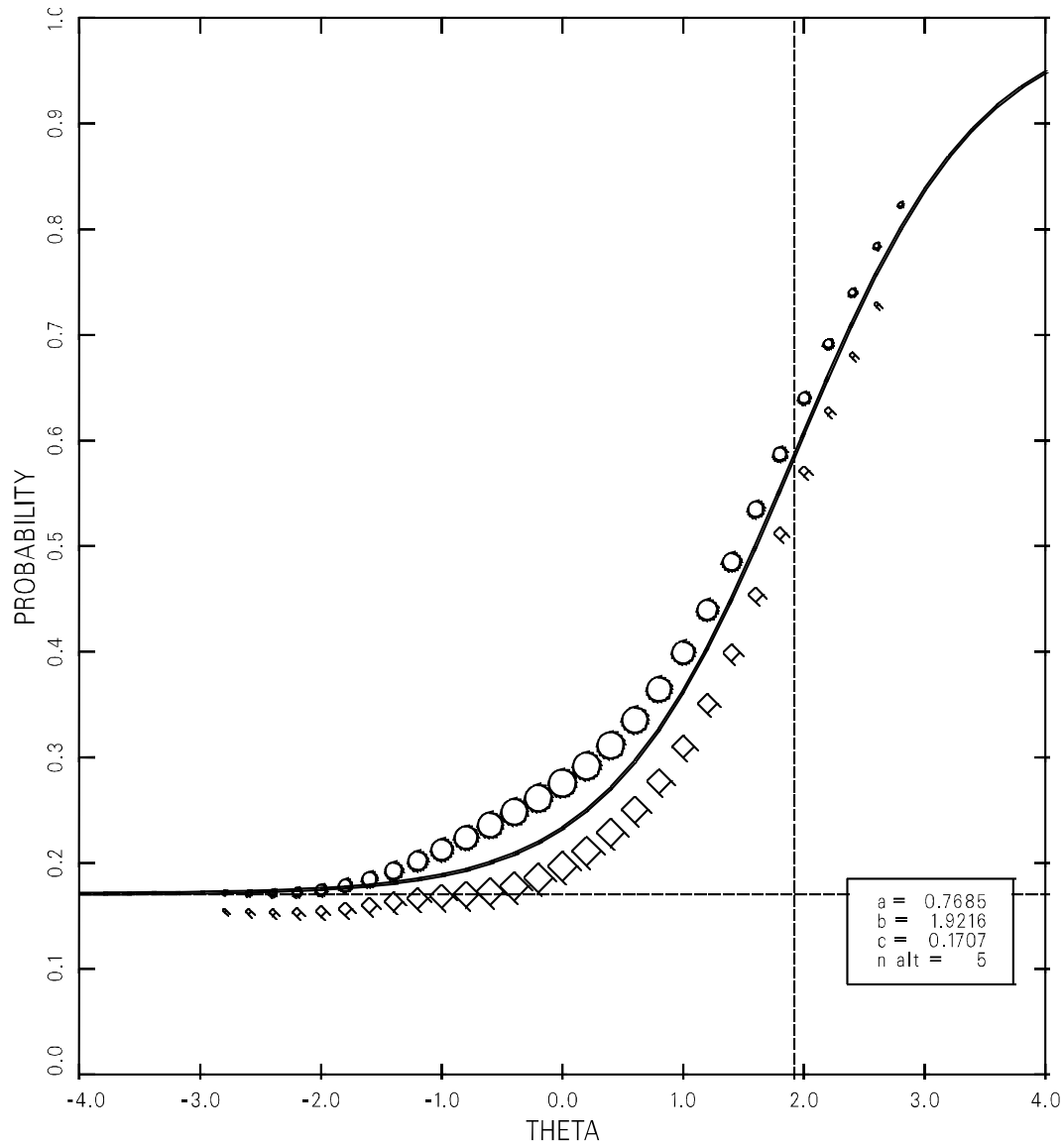
For good fitting items, the empirical and theoretical curves are close together. Therefore, items for which this is not true are examined carefully. Examples of plots for specific items are provided in the subject-area chapters. When the same items are presented in two assessment years, the empirical curves for the two years can be compared. Normally, these curves differ somewhat due to the sampling of students for each of the two years. Figure 12-3 contains a plot for an item from the NAEP 1996 mathematics national assessment with curves of this type. When the empirical curves differ dramatically, one cause might be a change in the meaning of the item due to instructional or societal changes across the years. This type of item is ordinarily treated as two different items—one for each of the assessment years. Figure 12-4 contains the plot for an item that has been treated in this way.

Figure 12-3
*Dichotomous Item (M017901) Exhibiting Good Model Fit Across Assessment Years**



* Circles represent 1996 grade 12 mathematics assessment data; diamonds represent 1992 grade 12 mathematics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

Figure 12-4
*Dichotomous Item (M018901) Exhibiting Different Empirical Item Functions
for Different Assessment Years**



* Circles represent 1996 grade 8 mathematics assessment data; diamonds represent 1992 grade 8 mathematics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) using a generalized partial credit model..

To summarize, using current methodologies in psychometrics, the assumption of conditional independence and the assumption that the data fit the models in Equations 12.1 and 12.3 are examined and controlled in NAEP in several ways. They are examined by considering tests of DIF, item fit statistics, and plots of empirical and theoretical IRFs. They are controlled by treating missing and “not reached” responses in reasonable ways, maintaining the context and administration of items across assessments, collapsing categories of polytomous items when appropriate, combining items into a single item, or making decisions about the inclusion or exclusion of an item in a scale based on data. The identification and amelioration of violations of IRT assumptions is an area of ongoing research in educational measurement. For example, recent studies have investigated local item dependence (Yen,

1993; Habing & Donoghue, in press), assessing the fit of the item response function (Orlando & Thissen, 2000; Donoghue & Hombro, 1999, Hombro & Donoghue, 2000), item parameter drift (Donoghue & Isham, 1998) and detecting and describing multidimensionality (e.g., Roussos, Stout, & Marden; 1998; Zhang & Stout, 1999).

12.3.2 An Overview of Plausible Values Methodology

Item response theory was developed in the context of measuring individual examinees' abilities. In that setting, each individual is administered enough items (often 60 or more) to permit precise estimation of his or her θ , as a maximum likelihood estimate, $\hat{\theta}$, for example. Because the uncertainty associated with each θ is negligible, the distribution of θ , or the joint distribution of θ with other variables, can then be approximated using an individual's $\hat{\theta}$ values as if they were θ values.

This approach breaks down in the assessment setting when, in order to provide broader content coverage in limited testing time, each respondent is administered relatively few items in a subject area scale. A first problem is that the uncertainty associated with individual θ s is too large to ignore, and the features of the $\hat{\theta}$ distribution can be seriously biased as estimates of the θ distribution. (The failure of this approach was verified in early analyses of the 1984 NAEP reading survey; see Wingersky, Kaplan, & Beaton, 1987.) A second problem, occurring even with test lengths of 60, arises when test forms vary across and within assessments as to the numbers, formats, and content of the test items. The measurement error distributions thus differ even if underlying θ distributions do not, causing $\hat{\theta}$ distributions to exhibit spurious changes and resulting in deceptive comparisons in apparent population distributions—easily greater than actual differences over time or across groups. Although this latter problem is avoided in traditional standardized testing by presenting students with parallel test forms, controlled tightly across time and groups, the same constraints cannot be imposed in the design and data-collection phases of the present NAEP. Plausible values were developed as a way to estimate key population features consistently, and approximate others no worse than standard IRT procedures would, even when item booklet composition, format, and content balances change over time. A detailed development of plausible values methodology is given in Mislevy (1991). Along with theoretical justifications, that paper presents comparisons with standard procedures, discussions of biases that arise in some secondary analyses, and numerical examples. The following provides a brief overview of the plausible values approach, focusing on its implementation in NAEP analyses.

Let \underline{y} represent the responses of all sampled examinees to background and attitude questions, along with variables based on the sampling design such as the school where the student is enrolled, and let $\underline{\theta}$ represent the vector of scale score values. If $\underline{\theta}$ were known for all sampled examinees, it would be possible to compute a statistic $t(\underline{\theta}, \underline{y})$, such as a scale or composite subpopulation sample mean, a sample percentile point, or a sample regression coefficient, to estimate a corresponding population quantity T . A function $U(\underline{\theta}, \underline{y})$ —for example, a jackknife estimate—would be used to gauge sampling uncertainty, as the variance of t around T in repeated samples from the population.

Because the scaling models are latent variable models, however, $\underline{\theta}$ values are not observed even for sampled students. To overcome this problem, we follow Rubin (1987) by considering $\underline{\theta}$ as “missing data,” and approximate $t(\underline{\theta}, \underline{y})$ by its expectation given $(\underline{x}, \underline{y})$, the data that actually were observed, as follows:

$$\begin{aligned} t^*(\underline{x}, \underline{y}) &= E\left[t(\underline{\theta}, \underline{y}) \mid \underline{x}, \underline{y}\right] \\ &= \int t(\underline{\theta}, \underline{y}) p(\underline{\theta} \mid \underline{x}, \underline{y}) d\underline{\theta}. \end{aligned} \quad (12.6)$$

It is possible to approximate t^* using random draws from the predictive conditional distribution of the scale proficiencies given the item responses x_i , background variables y_i , and model parameters for sampled student i . These values are referred to as imputations in the sampling literature, and plausible values in NAEP. The value of $\underline{\theta}$ for any respondent that would enter into the computation of t is thus replaced by a randomly selected value from the respondent’s conditional distribution. Rubin (1987) proposes that this process be carried out several times—multiple imputations—so that the uncertainty associated with imputation can be quantified. The average of the results of, for example, M estimates of t , each computed from a different set of plausible values, is a Monte Carlo approximation of Equation (12.6); the variance among them, B , reflects uncertainty due to not observing $\underline{\theta}$, and must be added to the estimated expectation of $U(\underline{\theta}, \underline{y})$, which reflects uncertainty due to testing only a sample of students from the population. Section 12.4 explains how plausible values are used in subsequent analyses.

It cannot be emphasized too strongly that **plausible values are *not* test scores for *individuals*** in the usual sense. Plausible values are offered only as intermediary computations for calculating integrals of the form of Equation (12.6), in order to estimate *population* characteristics. When the underlying model is correctly specified, plausible values will provide consistent estimates of population characteristics, even though they are not generally unbiased estimates of the proficiencies of the individuals with whom they are associated. The key idea lies in the contrast between plausible values and the more familiar estimates of scale score (e.g., maximum likelihood estimate or Bayes estimate) that are in some sense optimal for each examinee: *Point estimates that are optimal for individual examinees have distributions that can produce decidedly nonoptimal (specifically, inconsistent) estimates of population characteristics* (Little & Rubin, 1983). Plausible values, on the other hand, are constructed explicitly to provide consistent estimates of population effects. For further discussion see Mislevy, Beaton, Kaplan, and Sheehan (1992).

12.3.3 Computing Plausible Values in IRT-Based Scales

Plausible values for each respondent r are drawn from the predictive conditional distribution $p(\underline{\theta}_r \mid \underline{x}_r, \underline{y}_r, \Gamma, \Sigma)$, where Γ and Σ are regression model parameters defined in this subsection. This subsection describes how, in IRT-based scales, these conditional distributions are characterized, and how the draws are taken. An application of Bayes’ theorem with the IRT assumption of conditional independence produces

$$p(\underline{\theta}_r \mid \underline{x}_r, \underline{y}_r, \Gamma, \Sigma) \propto P(\underline{x}_r \mid \underline{\theta}_r, \underline{y}_r, \Gamma, \Sigma) \times p(\underline{\theta}_r \mid \underline{y}_r, \Gamma, \Sigma) = P(\underline{x}_r \mid \underline{\theta}_r) \times p(\underline{\theta}_r \mid \underline{y}_r, \Gamma, \Sigma) \quad (12.7)$$

where, for vector-valued $\underline{\theta}_r$, $P(\underline{x}_r|\underline{\theta}_r)$ is the product over scales of the *independent likelihoods* induced by responses to items within each scale, and $p(\underline{\theta}_r|\underline{y}_r, \Gamma, \Sigma)$ is the multivariate—and generally nonindependent—*joint density* of proficiencies for the scales, conditional on the observed value \underline{y}_r of background responses and the parameters Γ and Σ . The provisional scales are determined by the item parameter estimates that constrain the population mean to zero and standard deviation to one. The item parameter estimates are fixed and regarded as population values in the computation described in this subsection.

In the analyses of the data from the national main assessments, a normal (Gaussian) form is assumed for $p(\underline{\theta}_r|\underline{y}_r, \Gamma, \Sigma)$ with a common variance-covariance matrix Σ and with a mean given by a linear model with slope parameters, Γ , based on the first approximately 200 principal components of several hundred selected main-effects and two-way interactions of the complete vector of background variables. The included principal components are referred to as the *conditioning variables*, and are denoted \underline{y}^c . (The complete set of original background variables used in the analyses of each subject area are listed in Appendix F.) The following model is fit to the data within each subject area:

$$\underline{\theta} = \Gamma' \underline{y}^c + \underline{\varepsilon} \quad (12.8)$$

where $\underline{\varepsilon}$ is multivariately normally distributed with mean zero and variance-covariance matrix Σ . The number of principal components of the background variables used for each sample is sufficient to account for 90 percent of the total variance of the full set of background variables (after standardizing each variable). As in regression analysis, Γ is a matrix, each of whose columns contains the *effects* for one scale, and Σ is the matrix *variance-covariance of residuals* between scales.

A model similar to Equation (12.8) is used for the long-term trend assessments, with the difference that \underline{y}^c consists of main effects and interactions from the smaller set of background variables (rather than principal components of those variables) available in the long-term trend assessments.

Maximum likelihood estimates of Γ and Σ , denoted by $\hat{\Gamma}$ and $\hat{\Sigma}$, are obtained with extensions of Sheehan's (1985) MGROU computer program using the EM algorithm described in Mislevy (1985). The EM algorithm requires the computation of the mean, $\bar{\theta}_r$, and variance-covariance matrix, Σ_r^p of the predictive conditional distribution in Equation (12.7) for respondent r when there are p scales within a subject area. For subject areas with multiple scales, the CGROUP version of the MGROU program was used to compute the moments using higher order asymptotic corrections to a normal approximation (Thomas, 1993a). For the long-term trend assessments and other assessments with a single scale, the more precise but computationally intensive BGROU version of MGROU (Thomas, 1994) was used. BGROU uses numeric quadrature to evaluate the predictive conditional distribution moments required by the E-step of the EM algorithm for one- and two-dimensional applications (Thomas, 1993a). For estimation of group means on a single scale, CGROUP (Thomas, 1994) and BGROU results will be nearly identical to those from the original MGROU program. CGROUP and BGROU yield better estimates of correlations between scales, and hence better estimates of composite scale means. BGROU will, theoretically, yield better estimates than CGROUP, but because of the heavy computational demands of the methodology used, its function is limited to bivariate scales. Hence CGROUP is used for assessments involving more than two scales.

After completion of the EM algorithm, the plausible values for all sampled respondents are drawn in the following three-step process. First, a value of Γ is drawn from a normal distribution with

mean being \hat{I} and variance being the variance of \hat{I} . Second, conditional on the generated value of I and the fixed value of $\Sigma = \hat{\Sigma}$, the predictive conditional distribution mean $\bar{\theta}_r$ and the predictive conditional distribution variance Σ_r of respondent r are computed from Equation 12.7 using the EM algorithm (see Thomas, 1993a). Finally, the θ_r are drawn independently from a multivariate normal distribution with mean $\bar{\theta}_r$ and variance Σ_r approximating the distribution in Equation (12.7). These three steps are repeated five times producing five sets of imputation values for all sampled respondents.

12.4 INFERENCES ABOUT PROFICIENCIES

When survey variables are observed without error from every respondent, usual variance estimators quantify the uncertainty associated with sample statistics from the only source of uncertainty, namely the sampling of respondents. Item-level statistics for NAEP cognitive items meet this requirement, but scale score values do not. The IRT models used in their construction posit an unobservable scale score variable θ to summarize performance on the items in a scale. The fact that θ values are not observed even for the respondents in the sample requires additional statistical analyses to draw inferences about θ distributions and to quantify the uncertainty associated with those inferences. As described above, Rubin's (1987) multiple imputations procedures were adapted to the context of latent variable models to produce the plausible values upon which many analyses of the data from NAEP are based. This section describes how plausible values were employed in subsequent analyses to yield inferences about population and subpopulation distributions of proficiencies.

12.4.1 Computational Procedures

Even though one does not observe the θ value of respondent r , one does observe variables that are related to it: x_r , the respondent's answers to the cognitive items he or she was administered in the area of interest, and y_r , the respondent's answers to demographic and background variables. Suppose one wishes to draw inferences about a number $T(\theta, \underline{Y})$ that could be calculated explicitly if the θ and \underline{y} values of each member of the population were known. Suppose further that if θ values were observable, we would be able to estimate T from a sample of N pairs of θ and \underline{y} values by the statistic $t(\theta, \underline{y})$ [where $(\theta, \underline{y}) \equiv (\theta_1, y_1, \dots, \theta_N, y_N)$], and that we could estimate the variance in t around T due to sampling respondents by the function $U(\theta, \underline{y})$. Given that observations consist of (x_r, y_r) rather than (θ_r, y_r) , we can approximate t by its expected value conditional on (x, y) , or

$$t^*(x, y) = E[t(\theta, \underline{y}) | x, y] = \int t(\theta, \underline{y}) p(\theta | x, y) d\theta. \quad (12.9)$$

It is possible to approximate t^* with random draws from the conditional distributions $p(\theta_i | x_i, y_i)$, which are obtained for all respondents by the method described in Section 12.3.3. Let $\hat{\theta}_m$ be the m^{th} such vector of plausible values, consisting of a multidimensional value for the latent variable of each respondent. This vector is a plausible representation of what the true θ vector might have been, had we been able to observe it.

The following steps describe how an estimate of a scalar statistic $t(\underline{\theta}, \underline{y})$ and its sampling variance can be obtained from M (>1) such sets of plausible values. (Five sets of plausible values are used in NAEP analyses.)

1. Using each set of plausible values $\hat{\underline{\theta}}_m$ in turn, evaluate t as if the plausible values were true values of $\underline{\theta}$. Denote the results \hat{t}_m , for $m = 1, \dots, M$.
2. Using the jackknife variance estimator defined in Chapter 10, compute the estimated sampling variance of \hat{t}_m , denoting the result U_m .
3. The final estimate of t is

$$t^* = \sum_{m=1}^M \frac{\hat{t}_m}{M} \quad (12.10)$$

4. Compute the average sampling variance over the M sets of plausible values, to approximate uncertainty due to sampling respondents

$$U^* = \sum_{m=1}^M \frac{U_m}{M} \quad (12.11)$$

5. Compute the variance among the M estimates \hat{t}_m , to approximate the between-imputation variance

$$B = \sum_{m=1}^M \frac{(\hat{t}_m - t^*)^2}{(M-1)} \quad (12.12)$$

6. The final estimate of the variance of t^* is the sum of two components

$$V = U^* + (1 + M^{-1})B \quad (12.13)$$

In this equation, $(1+M^{-1})B$ is the estimate of variance due to the latency of $\underline{\theta}$. Due to the excessive computation that would be required, NAEP analyses do not compute and average jackknife variances over all five sets of plausible values, but uses that computed from the first set. Thus, in NAEP reports, U^* is approximated by U_1 .

12.4.2 Statistical Tests

The variance described in Section 12.4.1 is used to make statistical tests comparing NAEP results. This section describes the relationships between these tests and the variance components described above. Chapter 13 contains details of the hypothesis tests used in this assessment.

If $\underline{\theta}$ values were observed for all sampled students, the statistic $(t - T)/U^{1/2}$ would follow a t -distribution with d degrees of freedom, where d is calculated in the usual way. Then the incomplete-data statistic $(t^* - T)/V^{1/2}$ is approximately t -distributed, with degrees of freedom (Johnson & Rust, 1993; Satterthwaite, 1941) given by

$$v = \frac{1}{\frac{f^2}{M-1} + \frac{(1-f)^2}{d}} \quad (12.14)$$

where f is the proportion of total variance due to not observing $\underline{\theta}$ values:

$$f = (1 + M^{-1})B/V \quad (12.15)$$

When B is small relative to U^* , the reference distribution for incomplete-data statistics differs little from the reference distribution for the corresponding complete-data statistics. This is the case with main NAEP reporting variables. If, in addition, d is large, the normal approximation can be used to flag “significant” results.

For k -dimensional \underline{t} , such as the k coefficients in a multiple regression analysis, each U_m and U^* is a covariance matrix, and B is an average of squares and cross-products rather than simply an average of squares. In this case, the quantity $(T - \underline{t}^*) V^{-1} (T - \underline{t}^*)$, is approximately F distributed, with degrees of freedom equal to k and with v defined as above but with a matrix generalization of f :

$$f = (1 + M^{-1}) \text{Trace} (BV^{-1})/k. \quad (12.16)$$

By the same reasoning as used for the normal approximation for scalar t , a chi-square distribution on k degrees of freedom often suffices for multivariate \underline{t} .

12.4.3 Biases in Secondary Analyses

Statistics t^* that involve proficiencies in a scaled content area and variables included in the conditioning variables \underline{y}^c are consistent estimates of the corresponding population values T . This includes interrelationships among scales within a content area that have been treated in the multivariate manner described above in Section 12.3.3. Statistics involving background variables \underline{y} that were *not* conditioned on, or relationships among scale scores from *different* purposes, content strands or fields, are subject to asymptotic biases whose magnitudes depend on the type of statistic and the strength of the relationships of the nonconditioned background variables to the variables that were conditioned on and to the scale score of interest. That is, the large sample expectations of certain sample statistics need not equal the true population parameters.

The *direction* of the bias is typically to underestimate the effect of nonconditioned variables. For details and derivations see Beaton and Johnson (1990), Mislevy (1991), and Mislevy and Sheehan (1987, Section 10.3.5). For a given statistic t^* involving one content area and one or more nonconditioned background variables, the *magnitude* of the bias is related to the extent to which observed responses \underline{x} account for the latent variable $\underline{\theta}$, and the degree to which the nonconditioned background variables are explained by conditioning background variables. The first factor—conceptually related to test reliability—acts consistently in that greater measurement precision reduces biases in *all* secondary analyses. The second factor acts to reduce biases in certain analyses but increase it in others. In particular:

- High shared variance between conditioned and nonconditioned background variables *mitigates* biases in analyses that involve only scale score and nonconditioned variables, such as marginal means or regressions.
- High shared variance *exacerbates* biases in regression coefficients of conditional effects for nonconditioned variables, when nonconditioned and conditioned background variables are analyzed jointly as in multiple regression.

The large number of background variables that have been included in the conditioning vectors for the 1996 assessments allows a large number of secondary analyses to be carried out with little or no bias, and mitigates biases in analyses of the marginal distributions of θ in nonconditioned variables. Analysis of the 1988 NAEP reading data (some results of which are summarized in Mislevy, 1991), which had a similar design and fewer conditioning variables, indicates that the potential bias for nonconditioned variables in multiple regression analyses is below 10 percent, and biases in simple regression of such variables is below 5 percent. Additional research (summarized in Mislevy, 1990) indicates that most of the bias reduction obtainable from conditioning on a large number of variables can be captured by instead conditioning on the first several principal components of the matrix of all original conditioning variables. This procedure was adopted for the 1992, 1994, and 1996 national main assessments by replacing the conditioning effects by the first K principal components, where K was selected so that 90 percent of the total variance of the full set of conditioning variables (after standardization) was captured. Mislevy (1990) shows that this puts an upper bound of 10 percent on the average bias for all analyses involving the original conditioning variables.

12.4.4 A Numerical Example

To illustrate how plausible values are used in subsequent analyses, this subsection gives some of the steps in the calculation of the 1992 grade 4 reading composite mean and its estimation-error variance. This illustration is an example of the calculation of NAEP means and variances and can be used to understand their calculation for any NAEP assessment.

The weighted mean of the first plausible values of the reading composite for the grade 4 students in the sample is 217.79, and the jackknife variance of these values is 0.833. Were these values true θ values, then 217.79 would be the estimate of the mean and 0.833 would be the estimation-error variance. The weighted mean of the second plausible values of the same students, however, is 217.62; the third, fourth, and fifth plausible values give weighted means of 217.74, 218.24, and 218.05. Since all of these figures are based on precisely the same sample of students, the variation among them is due to uncertainty about the students' θ s, having observed their item responses and background variables. Consequently, our best estimate of the mean for grade 4 students is the average of the five plausible values: 217.89. Taking the jackknife variance estimate from the first plausible value, 0.833, as our estimate U^* of sampling variance, and the variance among the five weighted means, .063, as our estimate B of uncertainty due to not observing θ , we obtain as the final estimate V of total error variance $0.833 + (1+5^{-1}) .063 = 0.909$.

It is also possible to partition the estimation error variance of a statistic using these same variance components. The proportion of error variance due to sampling students from the population is U^*/V , and the proportion due to the latent nature of θ is $(1+M^{-1})B/V$. The results are shown in Table 12-1. The value of U^*/V roughly corresponds to reliability in classical test theory and indicates the amount of information about an average individual's θ present in the observed responses of the individual. It should be recalled again that the objective of NAEP is not to estimate and compare values of individual examinees, the accuracy of which is gauged by reliability coefficients. The objective of NAEP, rather, is

to estimate population and subpopulation characteristics, and the marginal estimation methods described above have been designed to do so consistently regardless of the values of reliability coefficients.

Table 12-1
*Estimation Error Variance and Related Coefficients for the 1992 Grade 4 Reading Composite
(Based on Five Plausible Values)*

U*	$(1+5^{-1})B$	V	Proportion of Variance Due to...	
			Student Sampling: U^*/V	Latency of θ : $(1+5^{-1})B/V$
0.833	0.076	0.908	0.92	0.08

Chapters 16, 17, 20, 21, and 24 and Appendix H provide values of the proportion of variance due to sampling and due to the latent nature of θ for all 1996 scales and composites for the populations as a whole and, in the appendix, for selected subpopulations. It will be seen that the proportion of variance due to the latency of θ varies somewhat among subject areas, tending to be largest for the long-term trend writing assessment, where there is low correlation between tasks and each student responded to only one or at most two tasks. The proportion of variance due to latency of θ is smallest for the composites of the national main assessment subjects with several scales, where the number of items per student is largest. Essentially, the variance due to the latent nature of θ is largest when there is less information about a student's scale score. (Note the distinction between estimation error variance of a parameter estimate and the estimate of the variance of the θ distribution. The former depends on the accuracy of measurement; the large-sample model-based expected value of the latter does not.) Given fixed assessment time, this decrease in information will occur whenever the amount of information per unit time decreases as can happen when many short constructed-response or multiple-choice items are replaced by a few extended constructed-response items.

12.5 DESCRIBING STUDENT PERFORMANCE

Since its beginning, a goal of NAEP has been to inform the public about what students in United States schools know and can do. While the NAEP scales provide information about the distributions of scale scores for the various subpopulations, they do not directly provide information about the meaning of various points on the scale. Traditionally, meaning has been attached to educational scales by norm-referencing—that is, by comparing students at a particular scale level to other students. In contrast, NAEP achievement levels and scale anchors describe selected points on the scale in terms of the types of skills that are likely to be exhibited by students scoring at that level. In addition, each NAEP item is mapped to a point on its corresponding scale, so that the content of each item provides information about what students at each score level can do in a probabilistic sense. The achievement level process has been applied to the reading, mathematics, science, U.S. history, and geography composites and to the writing and civics unidimensional scales. The achievement levels were set for reading in 1992, mathematics in 1990, science in 1996, U.S. history and geography in 1994, and writing and civics in 1998.

12.5.1 Achievement Levels

NAGB has determined that achievement levels shall be the first and primary way of reporting NAEP results. Setting achievement levels is a method for setting standards on the NAEP assessment that identifies what students should know and be able to do at various points on the composite. For each grade of each subject, three levels were defined—basic, proficient, and advanced. Based on initial policy

definitions of these levels, panelists were asked to determine operational descriptions of the levels appropriate with the content and skills assessed in the assessment. With these descriptions in mind, the panelists were then asked to rate the assessment items in terms of the expected performance of marginally acceptable examinees at each of these three levels. These ratings were then mapped onto the NAEP scale to obtain the achievement level cutpoints for reporting. Further details of the achievement level setting process for subject areas appear in Appendix I for reading and Appendix J for writing and civics.

12.5.2 Item Mapping Procedures

In order to map items (questions) to particular points on each subject area scale, a response probability convention had to be adopted that would divide those who had a higher probability of success from those who had a lower probability. Establishing a response probability convention has an impact on the mapping of assessment items onto the scales. A lower boundary convention maps the items at lower points along the scales, and a higher boundary convention maps the same items at higher points along the scales. The underlying distribution of skills in the population does not change, but the choice of a response probability convention does have an impact on the proportion of the student population that is reported as “able to do” the items on the scales.

There is no obvious choice of a point along the probability scale that is clearly superior to any other point. If the convention were set with a boundary at 50 percent, those above the boundary would be more likely to get an item right than get it wrong, while those below that boundary would be more likely to get the item wrong than right. While this convention has some intuitive appeal, it was rejected on the grounds that having a 50/50 chance of getting the item right shows an insufficient degree of mastery. If the convention were set with a boundary at 80 percent, students above the criterion would have a high probability of success with an item. However, many of the students below this criterion show some level of achievement that would be ignored by such a stringent criterion. In particular, those in the range between 50 and 80 percent correct would be more likely to get the item right than wrong, yet would not be in the group described as “able to do” the item.

In a compromise between the 50 percent and the 80 percent conventions, NAEP has adopted two related response probability conventions: 74 percent for multiple-choice items (to correct for the possibility of answering correctly by guessing), and 65 percent for constructed-response items (where guessing is not a factor). These probability conventions were established, in part, based on an intuitive judgment that they would provide the best picture of students’ knowledge and skills.

Some additional support for the dual conventions adopted by NAEP was provided by Huynh (1994, 1998). He examined the IRT information provided by items, according to the IRT model used in scaling NAEP items. Following Bock (1972), Huynh decomposed the item information into that provided by a correct response [$P_{ji}(\theta) \bullet I_j(\theta)$] and that provided by an incorrect response [$(1-P(\theta)) \bullet I(\theta)$]. Huynh showed that the item information provided by a correct response to a constructed-response item is maximized at the point along the scale at which two-thirds of the students get the item correct (for multiple-choice items with four options, information is maximized at the point at which 75 percent get the item correct). Maximizing the item information, $I(\theta)$, rather than the information provided by a correct response [$P(\theta) \bullet I(\theta)$], would imply an item-mapping criterion closer to 50 percent. Maximizing just the item information, $I(\theta)$, takes into account both responses that are correct and those that are incorrect, however.

For dichotomously scored items the information function as defined by Birnbaum (1968, p. 463) is defined for the j^{th} item as

$$I_j(\theta) = \frac{(1.7a_j)^2 P_{j0}(\theta_k) [P_{j1}(\theta_k) - c_j]^2}{P_{j1}(\theta_k)(1 - c_j)^2}, \quad (12.17)$$

where the notation is the same as that used in Equations (12.1) and (12.2). The item information function was defined by Samejima (1969) in general for polytomously scored items, and has been derived for items scaled by the generalized partial credit model (Donoghue, 1993; Muraki, 1993) as (in a slightly different, but equivalent form)

$$I_j(\theta) = (1.7a_j)^2 \left[\sum_{i=0}^{m_j-1} i^2 P_{ji}(\theta_k) - \left\{ \sum_{i=0}^{m_j-1} iP_{ji}(\theta_k) \right\}^2 \right]. \quad (12.18)$$

12.6 OVERVIEW OF THE 1998 NAEP SCALES

The following IRT scale score analyses were carried out for each grade in the 1998 NAEP assessment:

- ◆ Reading: Three IRT scales linked back to the 1992 and 1994 main assessments of reading. These three scales, along with a composite scale, are associated with the 1998 main and state assessments.
- ◆ Writing: A single newly developed IRT scale for each grade for the main and state assessments of writing.
- ◆ Civics: A single newly developed IRT scale for each grade for the main assessment of civics.

Details are in the following chapters.

Chapter 13

CONVENTIONS USED IN HYPOTHESIS TESTING AND REPORTING NAEP RESULTS¹

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13.1 OVERVIEW

Results for the 1998 NAEP assessments were disseminated in several different reports: the *NAEP 1998 Reading Report Card for the Nation and the States* (Donahue, Voelkl, Campbell, & Mazzeo, 1999), the *NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald, Persky, Campbell, & Mazzeo, 1999), the *NAEP 1998 Civics Report Card for the Nation* (Lutkus, Weiss, Campbell, Mazzeo, and Lazer, 1999), and, published only on the web, summary data tables for each report. These reports are published on the NCES/NAEP web site <http://nces.ed.gov/nationsreportcard>. Several other reports based on 1998 NAEP data will be forthcoming.

The *NAEP 1998 Reading Report Card for the Nation and the States*, the *NAEP 1998 Writing Report Card for the Nation and the States*, and the *NAEP 1998 Civics Report Card for the Nation* highlight key assessment results for the nation and summarize results across the jurisdictions participating in the assessments. These reports contain composite scale score results (e.g., scale score means) for the nation, for each of the four regions of the country, and for public-school students within each jurisdiction participating in the state assessments of reading and writing, both overall and by primary reporting variables. The seven key reporting variables (referred to here as primary reporting variables) are gender, race/ethnicity, level of parents' education, Title I participation, eligibility for free or reduced cost school lunch, type of location, and type of school (public, Catholic schools, other religious schools, and other private schools). For public-school students, scale score means were reported for a variety of other subpopulations defined by responses to items from the student, teacher, and school questionnaires and by school and location demographic variables provided by Westat². Upcoming reports will include estimates of scale score means and selected percentiles for specific subgroups of students of interest in each report.

The second type of summary report is an electronically delivered collection of summary data tables (available on the NCES/NAEP web site) that contain detailed breakdowns of the scale score data for each sample according to the responses to the student, teacher, and school questionnaires for the public-school, nonpublic-school, and combined populations as a whole and for important subgroups of the public-school population, as defined by the primary reporting variables. There are six sections in each collection of summary data tables:

¹ Spencer S. Swinton played a role in making decisions about hypothesis-testing methods and procedures and worked with David S. Freund, who implemented many of the methods and procedures in computer programs. Nancy L. Allen contributed to the current version of this chapter.

² Some of these variables were used by Westat, in developing the sampling frame for the assessment and in drawing the sample of participating schools.

Student Summary Data Tables break down the composite scale score data according to the students' responses to questions in the three student questionnaires (common core, subject-specific background, and motivational section) included in the assessment booklets.

Teacher Summary Data Tables break down the composite scale score data according to the teachers' responses to questions in teacher questionnaires, where they are available.

School Summary Data Tables break down the composite scale score data according to the principals' (or other administrators') responses to questions in the school characteristics and policies questionnaire.

Question Summary Data Tables provide the response data (percent of students choosing each option) for each cognitive item in the assessment.

Achievement-Level Summary Data Tables provide estimates of the percentage of students at or above each achievement level as well as the percentage of students below the *Basic* level.

Percentile Summary Data Tables provide selected composite-scale and subscale percentiles for the public-school, nonpublic-school, and total populations and for the major demographic subgroups of the national school population.

The production of the *Report Cards* and the summary data tables required many decisions about a variety of data analysis and statistical issues. For example, certain categories of the reporting variables contained limited numbers of examinees. A decision was needed as to what constituted a sufficient sample size to permit the reliable reporting of subgroup results, and which, if any, estimates were sufficiently unreliable to need to be "flagged" as a caution to readers. As a second example, the performance for subgroups of students were compared. A number of inferential rules, based on logical and statistical considerations, had to be developed to ensure that conclusions are adequately supported by the data from the assessment. Practical comparison procedures were required to control for Type I errors without paying too large a penalty with respect to the statistical power for detecting real and substantively interesting differences. Prior to 1998, the Bonferroni procedure (Hochberg, 1988) was the principal method used by NAEP to protect against Type I error. Currently, a new multiple comparison criterion, false discovery rate or FDR (Benjamini & Hochberg, 1994), is used. FDR controls the *rate* of false rejections (e.g., 5 false rejections per 100 rejections), rather than controlling the probability of one such error (familywise error rate, or FWE), as the Bonferroni procedure does. To implement the use of the FDR, the 1994 procedure of Benjamini and Hochberg was selected.

The purpose of this chapter is to document the major conventions and statistical procedures used in generating the *Report Cards* and the summary data tables. Additional details about procedures relevant to the *Report Cards* can be found in the text and technical appendices of those reports. Information is available on the Internet, describing procedures used in creating the summary data tables.

13.2 MINIMUM SCHOOL AND STUDENT SAMPLE SIZES FOR REPORTING SUBGROUP RESULTS

In all of the reports, estimates of quantities such as composite and scale score means and percentages of students indicating particular levels of background variables (as measured in the student, teacher, and school questionnaires) are reported for the population of students in each grade. These estimates are also reported for certain key subgroups of interest as defined by primary NAEP reporting

variables. Where possible, NAEP reports results for gender, for five racial/ethnic subgroups (White, Black, Hispanic, Asian American/Pacific Islander, and American Indian/Alaskan Native), three types of locations (central cities, urban fringes/large towns, rural/small town areas), four levels of parents' education (did not finish high school, high school graduate, some college, college graduate), Title 1 participation, eligibility for the free or reduced-cost school lunch component of the National School Lunch Program, and type of school. However, for some regions of the country and sometimes for the nation as a whole, school and/or student sample sizes were too small for one or more of the categories of these variables to permit accurate reporting.

A consideration in deciding whether to report an estimated quantity is whether the sampling error is too large to permit effective use of the estimates. A second, and equally important, consideration is whether the standard error estimate that accompanies a statistic is itself sufficiently accurate to inform potential readers about the reliability of the statistic. The precision of a sample estimate (be it sample mean or standard error estimate) for a population subgroup from a three-stage sample design (the one used to select samples for the national assessments) is a function of the sample size of the subgroup and of the distribution of that sample across first-stage sampling units (i.e., PSUs in the case of the national assessments). Hence, both of these factors were used in establishing minimum sample sizes for reporting.

Here a decision was reached to report subgroup results only if the student sample size exceeded 61.³ A design effect of two was assumed for this decision, implying a sample design-based variance twice that of simple random sampling. This assumption is consistent with previous NAEP experience (Johnson & Rust, 1992). In carrying out the statistical power calculations when comparing a subgroup to the total group, it was assumed that the total population sample size is large enough to contribute negligibly to standard errors. Furthermore, it was required that the students within a subgroup be adequately distributed across PSUs to allow for reasonably accurate estimation of standard errors. In consultation with Westat, a decision was reached to publish only those statistics that had standard error estimates based on five or more degrees of freedom. The same minimum student and PSU sample size restrictions were applied to proportions and to comparisons of percentages or proportions as well as average scale scores and comparisons of average scale scores.

13.3 IDENTIFYING ESTIMATES OF STANDARD ERRORS WITH LARGE MEAN SQUARED ERRORS

As noted above, standard errors of average scale scores, proportions, and percentiles play an important role in interpreting subgroup results and in comparing the performances of two or more subgroups. The jackknife standard errors reported by NAEP are statistics whose quality depends on certain features of the sample from which the estimate is obtained. In certain cases, the mean squared error⁴ associated with the estimated standard errors may be quite large. This result typically occurred when the number of students upon which the standard error is based is small or when this group of students comes from a small number of participating PSUs. The minimum PSU and student sample sizes that were imposed in most instances suppressed statistics where such problems existed. However, the possibility remained that some statistics based on sample sizes that exceed the minimum requirements had standard errors that were not well estimated. Therefore, in the reports, estimated standard errors for published statistics that are themselves subject to large mean squared errors are followed by the symbol “!”.

³ This number was obtained by determining the sample size necessary to detect an effect size of 0.5 with a probability of 0.8 or greater.

⁴ The mean squared error of the estimated standard error is defined as $\mathcal{E} [\hat{S} - \sigma]^2$, where \hat{S} is the estimated standard error, σ is the “true” standard error, and \mathcal{E} is the expectation, or expected value operator.

The magnitude of the mean squared error associated with an estimated standard error for the mean or proportion of a group depends on the coefficient of variation (*CV*) of the estimated size of the population group, denoted as \hat{N} (Cochran, 1977, Section 6.3). The coefficient of variation is estimated by:

$$CV(\hat{N}) = \frac{SE(\hat{N})}{\hat{N}}$$

where \hat{N} is a point estimate of N and $SE(\hat{N})$ is the jackknife standard error (described in Chapter 10 of this report) of \hat{N} .

Experience with previous NAEP assessments suggests that when this coefficient exceeds 0.2, the mean squared error of the estimated standard errors of means and proportions based on samples of this size may be quite large. (Further discussion of this issue can be found in Johnson & Rust, 1992.) Therefore, the standard errors of means and proportions for all subgroups for which the coefficient of variation of the population size exceeds 0.2 are marked as described above. In the *Report Cards* and the summary data tables, statistical tests involving one or more quantities that have standard errors, confidence intervals, or significance tests so flagged should be interpreted with caution.

13.4 TREATMENT OF MISSING DATA FROM THE STUDENT, TEACHER, AND SCHOOL QUESTIONNAIRES

As previously described, responses to the student, teacher, and school questionnaires played a prominent role in all reports. Although the return rate on all three types of questionnaire was high,⁵ there were missing data for each type of questionnaire.

The reported estimated percentages of students in the various categories of background variables, and the estimates of the average scale score of such groups, were based on only those students for whom data on the background variable were available. In the terminology of Little and Rubin (1987), the analyses pertaining to a particular background variable presented in the reports are contingent on the assumption that the data are missing completely at random.⁶

The estimates of proportions and proficiencies based on “missing completely at random” assumptions are subject to potential nonresponse bias if, as may be the case, the assumptions are not correct. The amount of missing data was small (usually, less than 2%) for most of the variables obtained from the student, school, and teacher questionnaires. For analyses based on these variables, reported results are subject to little, if any, nonresponse bias. However, for particular background items in these questionnaires, the level of nonresponse was somewhat higher, and so the potential for nonresponse bias is also somewhat greater. Results for background questions for which more than 10 percent of the responses were missing should be interpreted with caution.

To analyze the relationships among teachers’ questionnaire responses and their students’ achievement, each teacher’s questionnaire had to be matched to the students who were taught by that teacher. If a student could not be matched to a teacher, all teacher questionnaire responses are missing for that student. Lower percentages of students with teacher questionnaire data indicate that there is less

⁵ Information about survey participation rates (both school and student), as well as proportions of students excluded by each jurisdiction from the assessment, is given in Appendix A. Sampling adjustments intended to account for school and student nonresponse are described in Chapters 10 and 11.

⁶ The term “missing completely at random” means that the mechanism generating the missing data is independent of the response to the particular background items and the scale score.

certainty about results for variables from the teacher questionnaire. Note that these match rates do not reflect the additional missing data due to item-level nonresponse. The amount of additional item-level nonresponse in the returned teacher questionnaires can be found in the summary data tables.

13.5 HYPOTHESIS-TESTING CONVENTIONS

13.5.1 Comparing Means and Proportions for Different Groups of Students

Many of the group comparisons explicitly commented on in the reports involved mutually exclusive sets of students. Examples include comparisons of the average scale score for male and female students, White and Hispanic students, students attending schools in central city and urban fringe or large-town locations, students who reported watching six or more hours of television each night, and students who report watching less than one hour of television each night.

The text in the reports indicate that means or proportions from two groups were different only when the difference in the point estimates for the groups being compared was statistically significant at an approximate simultaneous α level of .05. An approximate procedure was used for determining statistical significance NAEP staff judged to be statistically defensible, as well as being computationally tractable. Although all pairs of levels within a variable were tested and reported in the summary data tables, some text within the reports was developed for only a subset of these comparisons, although the family size was maintained at that of the original tests. For example, text was included in the reports to compare the majority ethnic group and each minority group, but text for all possible comparisons of groups may not have been included. The procedure used to make statistical tests is described in the following paragraphs.

Let A_i be the statistic in question (e.g., a mean for group i) and let S_{A_i} be the jackknife standard error of the statistic. The text in the reports identified the means or proportions for groups i and j as being different if:

$$\frac{|A_i - A_j|}{\sqrt{S_{A_i}^2(A_i) + S_{A_j}^2(A_j)}} \geq T_{\frac{.05}{2c}}$$

where T_α is the $(1 - \alpha)$ percentile of the t distribution with degrees of freedom, df , as estimated below, and c is the number of related comparisons being tested. See the following section (Section 13.5.2) for a more specific description of multiple comparisons. In cases where group comparisons were treated as individual units, the value of c was taken as 1, and the test statistic was equivalent to a standard two-tailed t -test for independent samples. When c is greater than 1, this test is based on the Benjamini and Hochberg (1995) procedure of controlling the FDR, described below.

The procedures in this section assume that the data being compared are from independent samples. Because of the sampling design in which PSUs, schools, and students within school are randomly sampled, the data from mutually exclusive sets of students may not be strictly independent. Therefore, the significance tests employed are, in many cases, only approximate. Another procedure, one that does not assume independence, could have been conducted. However, that procedure is computationally burdensome. A comparison of the standard errors using the independence assumption and the correlated group assumption was made using NAEP data. The estimated standard error of the difference based on independence assumptions was approximately 10 percent larger than the more complicated estimate based on correlated groups. In almost every case, the correlation of NAEP data across groups was positive. Because, in NAEP, significance tests based on assumptions of independent

samples are only somewhat conservative, the approximate (assuming independence) procedure was used for most comparisons.

Because of clustering and differential weighting in the sample, the degrees of freedom are less than for a simple random sample of the same size. The degrees of freedom of this t -test is defined by a Satterthwaite (Johnson & Rust, 1992) approximation as follows:

$$df = \frac{\left(\sum_{k=1}^N S_{A_k}^2 \right)^2}{\sum_{k=1}^N \frac{S_{A_k}^4}{df_{A_k}}}$$

where N is the number of subgroups involved, and df_{A_k} is as follows:

$$df_{A_k} = \left(3.16 - \frac{2.77}{\sqrt{m}} \right) \left[\frac{\left(\sum_{j=1}^m (t_{jk} - t_k)^2 \right)^2}{\sum_{j=1}^m (t_{jk} - t_k)^4} \right]$$

where m is the number of jackknife replicates (usually 62 in NAEP), t_j is the j^{th} replicated estimate for the mean of a subgroup, and t_k is the estimate of the subgroup mean using the overall weights and the first plausible value.

The number of degrees of freedom for the variance equals the number of independent pieces of information used to generate the variance. In the case of data from NAEP, the 62 pieces of information are the squared differences $(t_{jk} - t_k)^2$, each supplying at most one degree of freedom (regardless of how many individuals were sampled within PSUs). If some of the squared differences $(t_{jk} - t_k)^2$ are much larger than others, the variance estimate of m_k is predominantly estimating the sum of these larger components, which dominate the remaining terms. The effective degrees of freedom of S_{A_k} in this case will be nearer to the number of dominant terms. The estimate df_{A_k} reflects these relationships.

The two formulae above show us that when df_{A_k} is small, the degrees of freedom for the t -test, df , will also be small. This will tend to be the case when only a few PSU pairs have information about subgroup differences relevant to a t -test. It will also be the case when a few PSU pairs have subgroup differences much larger than other PSU pairs.

The procedures described above were used for testing differences of both means *and* nonextreme percentages. The approximation for the test for percentages works best when sample sizes are large, and the percentages being tested have magnitude relatively close to 50 percent. Statements about group differences should be interpreted with caution if at least one of the groups being compared is small in size or if “extreme” percentages are being compared.

Differences in percentages were treated as involving “extreme” percentages if for either percentage, P :

$$P < P_{lim} = \frac{200}{N_{EFF} + 2},$$

where the effective sample size is

$$N_{EFF} = \frac{P(100 - P)}{(SE_{JK})^2}, \text{ and } SE_{JK}$$

is the jackknife standard error of P . Similarly, at the other end of the 0 – 100 scale, a percentage is deemed extreme if $100 - P < P_{lim}$. In either extreme case, the normal approximation to the distribution is a poor approximation, and the value of P was reported, but no standard error was estimated and hence no significance tests were conducted.

13.5.2 Multiple Comparison Procedures

Frequently, groups (or families) of comparisons were made and were presented as a single set. The appropriate text, usually a set of sentences or a paragraph, was selected for inclusion in a report based on the results for the entire set of comparisons. For example, some reports contain a section that compared average scale scores for a predetermined group, generally the majority group (in the case of race/ethnicity, for example, White students) to those obtained by other minority groups. The entire set of tests was presented in the summary data tables. The procedures described above and the certainty ascribed to intervals (e.g., a 95 % confidence interval) are based on statistical theory that assumes that only one confidence interval or test of statistical significance is being performed. However, in some sections of a report, many different groups are compared (i.e., multiple sets of confidence intervals are being analyzed). In sets of confidence intervals, statistical theory indicates that certainty associated with the entire set of intervals is less than that attributable to each individual comparison from the set. To hold the significance level for the set of comparisons at a particular level (e.g., .05), adjustments—called “multiple comparison procedures”—must be made to the methods described in the previous section. One such procedure, the false discovery rate (FDR) procedure (Benjamini & Hochberg, 1995) was used to control the certainty level.

Unlike the other multiple comparison procedures (e.g., the Bonferroni procedure) that control the familywise error rate (i.e., the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses. Furthermore, familywise procedures are considered conservative for large families of comparisons (Williams, Jones, & Tukey, 1999). Therefore, the FDR procedure is more suitable for multiple comparisons in NAEP than other procedures.

The 1998 assessment is the first time NAEP has used the Benjamini-Hochberg procedure to maintain FDR for all multiple comparisons. Prior to the 1996 assessment, the Bonferroni procedure was used for multiple comparisons. In 1996, either the Bonferroni or Benjamini-Hochberg FDR procedure was used, depending on the testing situation. The Benjamini-Hochberg FDR procedure was used for large numbers of comparisons (i.e., any comparisons involving all of the states): (a) all pairwise comparisons of the states; (b) all comparisons of individual states to the national average; and (c) the trend for each state, which compared the current mean for the state to the state’s mean in the previous

assessment. All other multiple comparisons for the 1996 assessment used the Bonferroni procedure. The 1994 NAEP reading assessments used the Bonferroni procedure exclusively for multiple comparisons.

The Benjamini and Hochberg application of the false discovery rate (FDR) criterion can be described as follows. Let q be the number of significance tests made and let $P(1) \leq P(2) \leq \dots \leq P(q)$ be the ordered significance levels of the q tests, from lowest to highest probability. Let α be the combined significance level desired, usually .05 for one-tailed tests (or .025 for two-tailed tests). The procedure compares $P(q)$ with α , $P(q-1)$ with $\alpha (q-1)/q$, . . . , $P(j)$ with α_j/q , stopping the comparisons with the first j such that $P(j) \leq \alpha_j/q$. All tests associated with $P(1)$, . . . , $P(j)$ are declared significant; all tests associated with $P(j+1)$, . . . , P_q are declared nonsignificant.

13.5.3 Comparing Proportions Within a Group

Certain analyses involved the comparison of proportions. One example was the comparison of the proportion of students who reported that a parent graduated from college to the proportion of students who indicated that their parents did not finish high school to determine which proportion was larger. There are other such proportions of interest in this example, such as the proportion of students with at least one parent graduating from high school but neither parent graduating from college. For these types of analyses, NAEP staff determined that the dependencies in the data could not be ignored.

Unlike the case for analyses of the type described in Section 13.5.1, the correlation between the proportion of students reporting a parent graduated from college and the proportion reporting that their parents did not finish high school is likely to be negative and large. For a particular sample of students, it is likely that the higher the proportion of students reporting “at least one parent graduated from college” is, the lower the proportion of students reporting “neither parent graduated from high school” will be. A negative dependence will result in underestimates of the standard error if the estimation is based on independence assumptions (as is the case for the procedures described in Section 13.5.1). Such underestimation can result in an unacceptably large number of “nonsignificant” differences being identified as significant.

The procedures of Section 13.5.1 were modified for analyses that involved comparisons of proportions within a group. The modification involved using a jackknife method for obtaining the standard error of the difference in dependent proportions. The standard error of the difference in proportions was obtained by first obtaining a separate estimate of the difference in question for each jackknife replicate (using the first plausible value only) then taking the standard deviation of the set of replicate estimates as the estimate. The procedures used for proportions within a group differed from the procedures of Section 13.5.1 only with respect to estimating the standard error of the difference; all other aspects of the procedures were identical.

Chapter 14

ASSESSMENT FRAMEWORKS AND INSTRUMENTS FOR THE 1998 NATIONAL AND STATE READING ASSESSMENTS¹

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14.1 INTRODUCTION

The reading framework was originally developed through a broad-based consensus process conducted by the Council of Chief State School Officers (CCSSO) working under contract to the National Assessment Governing Board (NAGB). The development process involved a steering committee, a planning committee, and CCSSO project staff. Educators, scholars, and citizens, representative of many diverse constituencies and points of view, participated in the national consensus process to design objectives for the reading assessment. The framework that was used for the 1998 NAEP reading assessment was also used for the 1992 and 1994 assessments.

The instrument used in the 1998 reading assessment was composed of a combination of reading passages and questions from the 1992 and 1994 assessments and a set of passages and questions newly developed for 1998. A total of twenty-three unique blocks (a block is a reading passage with a set of questions) were administered in 1998. Three of these blocks were developed for 1998 and the remaining twenty were carried over from the 1992 and 1994 assessments. Administering the same blocks across assessment years allows for the reporting of trends in reading performance. At the same time, developing new sets of passages and questions made it possible to release three blocks for public use. The framework for the reading assessment is available on the National Assessment Governing Board (NAGB) web site at <http://www.nagb.org>.

Sections 14.3 through 14.5 include a detailed description of the framework and the development of reading questions, or *items*, for the 1998 NAEP reading assessment. Section 14.8 also describes the student background questionnaires and the reading teacher questionnaire. Additional information on the structure and content of assessment booklets can be found in Section 14.9. The list of committee members who participated in the 1998 development process is provided in Appendix K.

Samples of assessment instruments and student responses are published in the *NAEP 1998 Reading Report Card for the Nation and the States: Findings from the National Assessment of Educational Progress* (Donahue, Voelkl, Campbell, & Mazzeo, 1999).

14.2 DEVELOPING THE READING ASSESSMENT FRAMEWORK

NAGB is responsible for setting policy for NAEP; this policymaking role includes the development of assessment frameworks and test specifications. Appointed by the Secretary of Education from lists of nominees proposed by the Board itself in various statutory categories, the 24-member board is composed of state, local, and federal officials, as well as educators and members of the public.

¹ Patricia L. Donahue manages the item development process for NAEP reading assessments. Terry L. Schoeps coordinates the production of NAEP technical reports.

NAGB began the development process for the 1992 reading objectives (which also served as the objectives for the 1994 and 1998 assessments) by conducting a widespread mail review of the objectives for the 1990 reading assessment and by holding a series of public hearings throughout the country. The contract for managing the remainder of the consensus process was awarded to the CCSSO. The development process included the following activities:

- A Steering Committee consisting of members recommended by each of 16 national organizations was established to provide guidance for the consensus process. The committee monitored the progress of the project and offered advice. Drafts of each version of the document were sent to members of the committee for review and reaction.
- A Planning Committee was established to identify the objectives to be assessed in reading and prepare the framework document. The members of this committee consisted of experts in reading, including college professors, an academic dean, a classroom teacher, a school administrator, state level assessment and reading specialists, and a representative of the business community. This committee met with the Steering Committee and as a separate group. A subgroup also met to develop item specifications. Between meetings, members of the committee provided information and reactions to drafts of the framework.
- The project staff at CCSSO met regularly with staff from NAGB and NCES to discuss progress made by the Steering and Planning committees.

During this development process, input and reactions were continually sought from a wide range of members of the reading field, experts in assessment, school administrators, and state staff in reading assessment. In particular, innovative state assessment efforts and work being done by the Center for the Learning and Teaching of Literature (Langer, 1989, 1990).

For more detail on the development and specifications of the reading framework, refer to the *Reading Framework and Specifications for the 1998 National Assessment of Educational Progress, 1992–1998* (NAGB, 1990).

14.3 READING FRAMEWORK AND ASSESSMENT DESIGN PRINCIPLES

The reading objectives framework was designed to focus on reading processes and outcomes, rather than reflect a particular instructional or theoretical approach. It was stated that the framework should focus not on the specific reading skills that lead to outcomes, but rather on the quality of the outcomes themselves. The framework was intended to embody a broad view of reading by addressing the increasing level of literacy needed for employability, personal development, and citizenship. The framework also specified a reliance on contemporary reading research and the use of nontraditional assessment formats that more closely resemble desired classroom activities.

The objectives development was guided by the consideration that the assessment should reflect many of the curricular emphases and objectives in various states, localities, and school districts in addition to what various scholars, practitioners, and interested citizens believed should be included in the curriculum. Accordingly, the committee gave attention to several frames of reference:

- The purpose of the NAEP reading assessment is to provide information about the progress and achievement of students in general rather than to test individual

students' ability. NAEP is designed to inform policymakers and the public about reading ability in the United States.

- The term “reading literacy” should be used in the broad sense of knowing when to read, how to read, and how to reflect on what has been read. It represents a complex, interactive process that goes beyond basic or functional literacy.
- The reading assessment should use valid and authentic tasks that are both broad and complete in their coverage of important reading behaviors so that the test will be useful and valid, and will demonstrate a close link to desired classroom instruction.
- Every effort should be made to make the best use of available methodology and resources in driving assessment capabilities forward. New types of items and new methods of analysis were recommended for NAEP reading assessments.
- Every effort must be made in developing the assessment to represent a variety of opinions, perspectives, and emphases among professionals, as well as state and local school districts.

14.4 FRAMEWORK FOR THE 1998 READING ASSESSMENT

The framework adopted for the 1998 reading assessment, which also served as the framework for the 1992 and 1994 assessments, was organized according to a four-by-three matrix of reading *stances* by reading *purposes*. The stances include:

- Initial Understanding;
- Developing an Interpretation;
- Personal Reflection and Response; and
- Demonstrating a Critical Stance.

These stances were assessed across three global purposes defined as:

- Reading for Literary Experience;
- Reading to Gain Information; and
- Reading to Perform a Task.

Different types of texts were used to assess the various purposes for reading. Students' reading abilities were evaluated in terms of a single purpose for each type of text. At grade 4, only Reading for Literary Experience and Reading to Gain Information were assessed, while all three global purposes were assessed at grades 8 and 12. Figure 14-1 and 14-2 describe the four reading stances and three reading purposes that guided the development of NAEP's 1992, 1994, and 1998 reading assessments.

The Planning Committee was interested in creating an assessment that would be forward-thinking and reflect quality instruction. In recognition that the demands made of readers change as they mature and move through school, it was recommended that the proportion of items have some relation to reading purpose (i.e., for literary experience, to gain information, to perform a task). The distribution of items by reading purpose across grade levels recommended in the assessment framework is provided in Table 14-1.

Readers use a range of cognitive abilities and assume various stances that should be assessed within each of the reading purposes. While reading, students form an initial understanding of the text and connect ideas within the text to generate interpretations. In addition, they extend and elaborate their understanding by responding to the text personally and critically and by relating ideas in the text to prior knowledge.

For more detail on the development and specifications of the Reading Framework, refer to *Reading Framework for the National Assessment of Educational Progress, 1992-1998* (NAGB, 1990).

Figure 14-1
Description of Reading Stances

Readers interact with text in various ways as they use background knowledge and understanding of text to construct, extend, and examine meaning. The NAEP reading assessment framework specified four reading stances to be assessed that represent various interactions between readers and texts. These stances are not meant to describe a hierarchy of skills or abilities. Rather, they are intended to describe behaviors that readers at all developmental levels should exhibit.

Initial Understanding

Initial understanding requires a broad, preliminary construction of an understanding of the text. Questions testing this aspect ask the reader to provide an initial impression or unreflected understanding of what was read. The first question following a passage was usually one testing initial understanding.

Developing an Interpretation

Developing an interpretation requires the reader to go beyond the initial impression to develop a more complete understanding of what was read. Questions testing this aspect require a more specific understanding of the text and involve linking information across parts of the text as well as focusing on specific information.

Personal Reflection and Response

Personal reflection and response requires the reader to connect knowledge from the text more extensively with his or her own personal background knowledge and experience. The focus is on how the text relates to personal experience; questions on this aspect ask the readers to reflect and respond from a personal perspective. Personal reflection and response questions were typically formatted as constructed-response items to allow for individual possibilities and varied responses.

Demonstrating a Critical Stance

Demonstrating a critical stance requires the reader to stand apart from the text, consider it, and judge it objectively. Questions on this aspect require the reader to perform a variety of tasks such as critical evaluation, comparing and contrasting, application to practical tasks, and understanding the impact of such text features as irony, humor, and organization. These questions focus on the reader as critic and require reflection on and judgments about how the text is written.

Figure 14-2
Description of Purposes for Reading

Reading involves an interaction between a specific type of text or written material and a reader, who typically has a purpose for reading that is related to the type of text and the context of the reading situation. The reading assessment presented three types of text to students representing each of three reading purposes: literary text for literary experience, informational text to gain information, and documents to perform a task. Students' reading skills were evaluated in terms of a single purpose for each type of text.

Reading for Literary Experience

Reading for literary experience involves reading literary text to explore the human condition, to relate narrative events with personal experiences, and to consider the interplay in the selection among emotions, events, and possibilities. Students in the NAEP reading assessment were provided with a wide variety of literary text, such as short stories, poems, fables, historical fiction, science fiction, and mysteries.

Reading to Gain Information

Reading to gain information involves reading informative passages in order to obtain some general or specific information. This often requires a more utilitarian approach to reading that requires the use of certain reading/thinking strategies different from those used for other purposes. In addition, reading to gain information often involves reading and interpreting adjunct aids such as charts, graphs, maps, and tables that provide supplemental or tangential data. Informational passages in the NAEP reading assessment included biographies, science articles, encyclopedia entries, primary and secondary historical accounts, and newspaper editorials.

Reading to Perform a Task

Reading to perform a task involves reading various types of materials for the purpose of applying the information or directions in completing a specific task. The reader's purpose for gaining meaning extends beyond understanding the text to include the accomplishment of a certain activity. Documents requiring students in the NAEP reading assessment to perform a task included directions for creating a time capsule, a bus schedule, a tax form, and instructions on how to write a letter to a senator. Reading to perform a task was assessed only at grades 8 and 12.

Table 14-1
*Percentage Distribution of Items by Reading Purpose
as Specified in the NAEP Reading Framework*

Grade	Purpose for Reading		
	Reading for Literary Experience	Reading to Gain Information	Reading to Perform a Task
4	55%	45%	(Not Assessed)
8	40%	40%	20%
12	35%	45%	20%

Table 14-2 shows the distribution of items by reading stance, as specified in the reading framework, for all three grade levels.

Table 14-2
*Percentage Distribution of Items by Reading Stance
as Specified in the NAEP Reading Framework*

Reading Stance	Grades 4, 8, and 12
Initial Understanding/Developing an Interpretation	33%
Personal Reflection and Response	33%
Demonstrating a Critical Stance	33%

14.5 DEVELOPING THE READING COGNITIVE ITEMS

In developing the new portion of the 1998 NAEP reading assessment, the same framework and procedures used in 1992, and again in 1994, were followed. After careful review of the objectives, reading materials were selected and questions were developed that were appropriate to the objectives. All questions were extensively reviewed by specialists in reading, measurement, and bias/sensitivity, as well as by state representatives.

The development of cognitive items began with a careful selection of grade-appropriate passages for the assessment. Passages were selected from a pool of reading selections contributed by teachers from across the country. The framework states that the assessment passages should represent authentic, naturally occurring reading material that students may encounter in and out of school. Furthermore, these passages were to be reproduced in test booklets as they had appeared in their original publications. In some cases, materials (such as bus schedules) were provided to students separate from the printed assessment booklet. Final passage selections were made by the Reading Instrument Development Committee. In order to guide the development of items, passages were outlined or mapped to identify essential elements of the text.

The assessment included constructed-response (short and extended) and multiple-choice items. The decision to use a specific item type was based on a consideration of the most appropriate format for assessing the particular objective. Both types of constructed-response items were designed to provide an in-depth view of students' ability to read thoughtfully and to respond appropriately to what they read. Short constructed-response questions were used when students needed to respond in only one or two sentences in order to demonstrate full comprehension. Extended constructed-response questions were used when the task required more thoughtful consideration of the text and engagement in more complex

reading processes. Multiple-choice items were used whenever a reading outcome could be measured through use of these items.

A carefully developed and proven series of steps was used to create the assessment items. These steps are described in Chapter 2.

The assessment included 25-minute and 50-minute "blocks," each consisting of one or more passages and a set of multiple-choice and constructed-response items to assess students' comprehension of the written material. At grade 8 and 12 students were asked to respond to either two 25-minute blocks or one 50-minute block. The grade-4 assessment included eight 25-minute blocks (four blocks measuring each of the two global purposes for reading assessed at this grade). The instruments at grades 8 and 12 each included nine 25-minute blocks (three blocks measuring each of the global purposes for reading). In addition, the grade 8 assessment included one 50-minute block and the grade-12 assessment included two 50-minute blocks.

14.6 DEVELOPING THE READING OPERATIONAL FORMS

A reading field test was conducted in March 1997 to test new reading questions that were developed to replace the few 1994 items that had been publicly released and were, therefore, no longer able to be used in an operational assessment. The field test was given to national samples of fourth-, eighth-, and twelfth-grade students. The field test data were collected, scored, and analyzed in preparation for meetings with the Reading Instrument Development Committee. Using item analysis, which provided the mean percentage of correct responses, the polyserial correlations, and the difficulty level for each item in the field test, committee members, ETS test development staff, and NAEP/ETS staff reviewed the materials. The objectives that guided these reviews included:

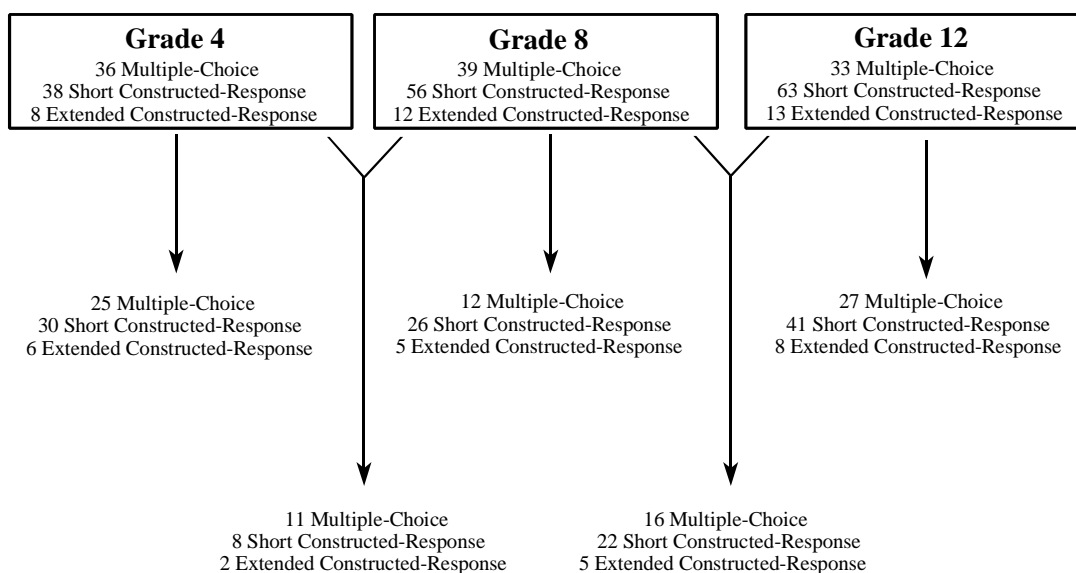
- determining which items were most related to overall student achievement,
- determining the need for revisions of items that lacked clarity or had ineffective item formats,
- prioritizing items to be included in the assessment, and
- determining appropriate timing for assessment items.

Once the committees had selected the items, all items were rechecked for content, measurement, and sensitivity concerns. The federal clearance process was initiated in June 1997 with the submission of draft materials to NCES. The package containing the final set of cognitive items assembled into blocks and questionnaires was submitted in June 1997. Throughout the clearance process, revisions were made in accordance with changes required by the government. Upon approval, the blocks (assembled into booklets) and questionnaires were prepared for printing.

14.7 DISTRIBUTION OF READING ASSESSMENT ITEMS

Figure 14-3 lists the total number of items at each grade level in the 1998 assessment. Of the total of 247 items, there are 93 unique multiple-choice items and 154 unique constructed-response questions that make up the 1998 reading assessment. Some of these items are used at more than one grade level. As a result, the sum of the items that appear at each grade level is greater than the total number of unique items.

Figure 14-3
Distribution of Items for the 1998 Reading Assessment



In the development process, every effort was made to meet the content and process targets specified in the assessment framework. Table 14-3 shows the approximate percentage of aggregate assessment time devoted to each purpose for reading at each grade level. Percentages are based on the classifications agreed upon by NAEP's 1998 Instrument Development Committee. Note that the numbers presented in Table 14-3 differ from Table 14-1 in that Table 14-1 shows the distribution of assessment items as specified in the reading framework.

Table 14-3
Percentage Distribution of Assessment Time by Grade and Reading Purpose for the NAEP 1998 Reading Assessment

Reading Purpose	Grade 4	Grade 8	Grade 12
Reading for Literary Experience	50%	38%	33%
Reading to Gain Information	50%	38%	47%
Reading to Perform a Task	N/A	23%	20%

Table 14-4 shows the approximate percentage of assessment time devoted to each reading stance. Unlike the purposes for reading, in which individual students did not receive questions in all areas, every student completed tasks involving each of the reading stances. It is recognized that making discrete classifications is difficult for these categories and that independent efforts to classify NAEP questions have led to different results (National Academy of Education, 1992). Also, it has been found that developing personal response questions that are considered equitable across students' different backgrounds and experiences is difficult. Note that the numbers presented in Table 14-4 differ from Table 14-2, in that Table 14-2 shows the distribution of items as specified in the reading framework.

Table 14-4
*Percentage Distribution of Assessment Time by Grade
 and Reading Stance for the NAEP 1998 Reading Assessment*

Reading Stance	Grade 4	Grade 8	Grade 12
Initial Understanding/ Developing an Interpretation	56%	49%	52%
Personal Reflection and Response	21%	19%	16%
Demonstrating a Critical Stance	23%	32%	32%

14.8 BACKGROUND QUESTIONNAIRES FOR THE 1998 READING ASSESSMENT

Research indicates that school, home, and attitudinal variables affect students' reading comprehension and literacy. Therefore, in addition to assessing how well students read, it is important to understand the instructional context in which reading takes place, students' home support for literacy, and their reading habits and attitudes. To gather contextual information, NAEP assessments include background questions designed to provide insight into the factors that may influence reading scale scores in the literary, informational, and document categories assessed.

NAEP includes both general background questionnaires given to participants in all subjects and subject-specific questionnaires for both students and their teachers. The development of the general background questionnaires is discussed below. It is worth noting that members of the Reading Instrument Development Committee were consulted on the appropriateness of the issues addressed in all questionnaires that may relate to reading instruction and achievement. Like the cognitive items, all background questions were submitted for extensive review and field testing. Recognizing the reliability problems inherent in self-reported data, particular attention was given to developing questions that were meaningful and unambiguous and that would encourage accurate reporting.

In addition to the cognitive questions, the 1998 assessment included one five-minute set each of general and reading background questions designed to gather contextual information about students, their instructional and recreational experiences in reading, and their attitudes toward reading. Students in the fourth grade were given additional time because the items in the general questionnaire were read aloud for them. A one-minute questionnaire was also given to students at the end of each booklet to measure students' motivation in completing the assessment and their familiarity with assessment tasks.

14.8.1 Student Reading Questionnaires

Three sets of multiple-choice background questions were included as separate sections in each student booklet:

General Background: The general background questions collected demographic information about race/ethnicity, language spoken at home, mother's and father's level of education, reading materials in the home, homework, school attendance, which parents live at home, and which parents work outside the home.

Reading Background: Students were asked to report their instructional experiences related to reading in the classroom, including group work, special projects, and writing in response to reading. In addition, they were asked about the instructional practices of their reading teachers and the extent to which the students themselves discussed what they read in class and demonstrated use of skills and strategies.

Motivation: Students were asked five questions about their attitudes and perceptions about reading and self-evaluation of their performance on the NAEP assessment.

Table 14-5 shows the number of questions per background section and the placement of each within student booklets.

Table 14-5
NAEP 1998 Background Sections of Student Reading Booklets

	Number of Questions	Placement in Student Booklet
Grade 4		
General Background	21	Section 1
Reading Background	22	Section 4
Motivation	5	Section 5
Grade 8		
General Background	17	Section 1
Reading Background	24	Section 4
Motivation	5	Section 5
Grade 12		
General Background	18	Section 1
Reading Background	25	Section 4
Motivation	5	Section 5

14.8.2 Language Arts Teacher Questionnaire

To supplement the information on instruction reported by students, the reading teachers of the fourth and eighth graders participating in the NAEP reading assessment were asked to complete a questionnaire about their educational background, content-area preparation, and classroom practices. The teacher questionnaire contained two parts. The first part pertained to the teachers' background and general training. The second part pertained to specific training in teaching reading and the procedures the teacher used for *each class* containing an assessed student.

The **Teacher Questionnaire, Part I: Background, Education, and Resources** (49 questions at grade 4 and 48 questions at grade 8) included questions pertaining to:

- gender;
- race/ethnicity;
- years of teaching experience;
- certification, degrees, major and minor fields of study;
- coursework in education;
- coursework in specific subject areas;
- amount of in-service training;
- extent of control over instructional issues; and
- availability of resources for their classroom.

The **Teacher Questionnaire, Part IIA: Reading/Writing Preparation** (12 questions at grade 4 and 12 at grade 8) included questions on the teacher's professional development in reading theory and instruction.

The **Teacher Questionnaire, Part IIB: Reading/Writing Instructional Information** (84 questions at grade 4 and 85 questions at grade 8) included questions pertaining to:

- ability level of students in the class;
- whether students were assigned to the class by ability level;
- time on task;
- homework assignments;
- frequency of instructional activities used in class;
- methods of assessing student progress in reading;
- instructional emphasis given to the reading abilities covered in the assessment; and
- use of particular resources.

14.9 STUDENT BOOKLETS FOR THE 1998 READING ASSESSMENT

The assembly of reading blocks into booklets and their subsequent assignment to sampled students was determined by a partially balanced incomplete block (PBIB) design with spiraled administration. The 25-minute blocks were assembled into 52 booklets such that two different blocks were assigned to each booklet and each block appeared in four booklets. Each 25-minute block was paired with another block measuring the same purpose for reading (i.e., reading for literary experience, reading to gain information, reading to perform a task) approximately 75 percent of the time at grade 4 and approximately 50 percent of the time at grades 8 and 12. This was the *partially balanced* part of the PBIB design.

The focused PBIB design also balances the order of presentation of the blocks—every block appears as the first cognitive block in two booklets and as the second cognitive block in two other booklets. This design allows for some control of context and fatigue effects.

At grade 4, the blocks were assembled into 16 booklets. At grade 8, the 25-minute blocks were assembled into 18 booklets, and the 50-minute block appeared in a single booklet. At grade 12, the 25-minute blocks were assembled into 18 booklets, and each 50-minute block appeared in a separate booklet. The assessment booklets were then spiraled and bundled. Spiraling involves interweaving the booklets in a systematic sequence so that each booklet appears an appropriate number of times in the sample. The bundles were designed so that each booklet would appear equally often in a position in a bundle.

As in the other subjects, the final step in the BIB or PBIB spiraling procedure was the assigning of booklets to the assessed students. The students in the assessment session were assigned booklets in the order in which the booklets were bundled. Thus, most students in an assessment session received different booklets. Tables 14-6, 14-7, and 14-8 detail the configuration of booklets administered in the 1998 national and state reading assessment.

Table 14-6
NAEP 1998 Reading Grade 4 Booklet Configuration

Booklet Number	Common Core Background	Question Block 1	Question Block 2	Reading Background	Motivation
1	CR	R4	R3	RB	RA
2	CR	R3	R5	RB	RA
3	CR	R5	R9	RB	RA
4	CR	R9	R4	RB	RA
5	CR	R4	R5	RB	RA
6	CR	R3	R9	RB	RA
7	CR	R6	R10	RB	RA
8	CR	R10	R7	RB	RA
9	CR	R7	R8	RB	RA
10	CR	R8	R6	RB	RA
11	CR	R6	R7	RB	RA
12	CR	R10	R8	RB	RA
13	CR	R7	R4	RB	RA
14	CR	R8	R3	RB	RA
15	CR	R5	R6	RB	RA
16	CR	R9	R10	RB	RA

Table 14-7
NAEP 1998 Reading Grade 8 Booklet Configuration

Booklet Number	Common Core Background	Question Block 1	Question Block 2	Reading Background	Motivation
1	CR	R3	R4	RB	RA
2	CR	R4	R5	RB	RA
3	CR	R5	R3	RB	RA
4	CR	R6	R8	RB	RA
5	CR	R8	R7	RB	RA
6	CR	R7	R6	RB	RA
7	CR	R10	R9	RB	RA
8	CR	R9	R11	RB	RA
9	CR	R11	R10	RB	RA
10	CR	R3	R8	RB	RA
11	CR	R7	R4	RB	RA
12	CR	R5	R6	RB	RA
13	CR	R6	R9	RB	RA
14	CR	R8	R11	RB	RA
15	CR	R10	R7	RB	RA
16	CR	R4	R10	RB	RA
17	CR	R9	R5	RB	RA
18	CR	R11	R3	RB	RA
21	CR	————— R13* —————		RB	RA

* Block R13 contained one 50-minute task.

Table 14-8
NAEP 1998 Reading Grade 12 Booklet Configuration

Booklet Number	Common Core Background	Question Block 1	Question Block 2	Reading Background	Motivation
1	CR	R3	R4	RB	RA
2	CR	R4	R5	RB	RA
3	CR	R5	R3	RB	RA
4	CR	R6	R7	RB	RA
5	CR	R7	R8	RB	RA
6	CR	R8	R6	RB	RA
7	CR	R10	R9	RB	RA
8	CR	R9	R11	RB	RA
9	CR	R11	R10	RB	RA
10	CR	R3	R7	RB	RA
11	CR	R8	R4	RB	RA
12	CR	R5	R6	RB	RA
13	CR	R6	R9	RB	RA
14	CR	R7	R11	RB	RA
15	CR	R10	R8	RB	RA
16	CR	R4	R10	RB	RA
17	CR	R9	R5	RB	RA
18	CR	R11	R3	RB	RA
21	CR	———— R13* ————		RB	RA
22	CR	———— R14* ————		RB	RA

* Blocks R13 and R14 contained one 50-minute task each.

Chapter 15

INTRODUCTION TO THE DATA ANALYSIS FOR THE NATIONAL AND STATE READING ASSESSMENTS¹

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15.1 INTRODUCTION

This chapter introduces the analyses performed on the responses to the cognitive and background items in the 1998 assessment of reading. The results of these analyses are presented in the *NAEP 1998 Reading: A Report Card for the Nation and the States* (Donahue et al., 1999). The emphasis of this chapter is on the description of student samples, items, assessment booklets, administrative procedures, scoring constructed-response items, and student weights, and on the methods and results of DIF analyses. The major analysis components are discussed in Chapter 16 for the national assessment and Chapter 17 for the state assessment.

The objectives of the reading analyses were to:

- prepare scale values and estimate subgroup scale score distributions for national and state samples of students who were administered reading items from the main assessment,
- link the 1998 main focused PBIB samples to the 1994 reading scale,
- perform all analyses necessary to produce a short-term trend report in reading (The reading short-term trend results include the years 1992, 1994 and 1998),
- link the 1998 state assessment scales to the corresponding scales from the 1998 national assessment.

15.2 DESCRIPTION OF STUDENT SAMPLES, ITEMS, ASSESSMENT BOOKLETS, AND ADMINISTRATIVE PROCEDURES

The student samples that were administered reading items in the 1998 assessment are shown in Table 15-1. The data from the national main focused PBIB assessment of reading (4 [Reading–Main], 8 [Reading–Main], and 12 [Reading–Main]) were used for national main analyses comparing the levels of reading achievement for various subgroups of the 1998 target populations. Chapters 1 and 3 contain descriptions of the target populations and the sample design used for the assessment. The target populations were grade 4, grade 8, and grade 12 students in the United States. Unlike previous reading NAEP assessments, only grade-defined cohorts were assessed in the 1998 NAEP. The sampled students in these three cohorts were assessed in the winter (January to March with final makeup sessions held

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from March 30 to April 3). As described in Chapter 3, the reporting sample for the national reading assessment consisted of students in the S2 sample and the S3 sample, excluding the SD/LEP students.

Table 15-1
NAEP 1998 Reading Student Samples

Sample	Booklet ID Number	Cohort Assessed	Time of Testing*	Reporting Sample Size
4 [Reading–Main]	R1–R16	Grade 4	1/5/98 – 3/27/98	7,672
8 [Reading–Main]	R1–R18, R21	Grade 8	1/5/98 – 3/27/98	11,051
12 [Reading–Main]	R1–R18, R21–R22	Grade 12	1/5/98 – 3/27/98	12,675
4 [Reading–State]	R1–R16	Grade 4	1/5/98 – 3/27/98	112,138
8 [Reading–State]	R1–R18, R21	Grade 8	1/5/98 – 3/27/98	94,429

* Final makeup sessions were held March 30–April 3, 1998.

LEGEND: Main NAEP national main assessment
State NAEP state assessment

The data from the state focused PBIB assessment of reading (4[Reading–State] and 8[Reading–State]) were used for the state analyses. The 1998 state reading assessment included the assessment of both public- and nonpublic-school students for many jurisdictions. The state results reported in the *NAEP 1998 Reading: Report Card for the Nation and the States* (Donahue et al., 1999) are based on public-school students. The state results for both public and nonpublic schools are presented separately in Chapter 17. The procedures used were similar to those of previous state assessments.

The items in the assessment were based on the curriculum framework described in *Reading Framework for the National Assessment of Educational Progress, 1992–1998* (NAGB, 1990). The 1998 reading assessment is based on the same objectives as the 1994 reading assessment. Compared to earlier NAEP assessments, the current assessment contains longer reading passages that are intended to be more authentic examples of the reading tasks encountered in and out of school. As described in the reading framework, these blocks are organized into three subscales, corresponding to three purposes for reading: reading for literary experience, reading to gain information, and reading to perform a task. At grade 4, only the first two purposes are represented. Scales were produced for each of the purposes of reading. In addition, a composite scale for reading was created as a weighted sum of the purposes-for-reading scales (see Table 14-1).

In the main samples, each student was administered a booklet containing either two separately timed 25-minute blocks of cognitive reading items or one 50-minute reading block (in lieu of the two 25-minute blocks). In addition, each student was administered a block of background questions, a block of reading-related background questions, and a block of questions concerning the student’s motivation and his or her perception of the difficulty of the cognitive items. The background and motivational blocks were common to all reading booklets for a particular grade level. Eight (grade 4) or nine (grade 8 and grade 12) 25-minute blocks of reading items were administered at each grade level. As described in Chapter 2, the 25-minute blocks were combined into booklets according to a partially balanced incomplete block (PBIB) design. See Chapter 14 for more information about the blocks and booklets. Fifty-minute reading blocks were presented to the older students, one at grade 8 and two at grade 12. The

50-minute blocks were closely examined to ensure the appropriateness of including them with the shorter blocks in the scaling.²

For each grade, more than 80 percent of the items in the main assessment were identical to items in the 1994 main assessment. These items occurred in intact blocks, and provided the common information needed to establish the short-term trend. Table 15-2 gives the blocks and numbers of items common across assessment years.

Table 15-2
1998 Reading Blocks and Items Common to the 1992 and 1994 Assessments

Sample	New Blocks	Common Blocks to 1994 (Number of Common Items)	Common Blocks to 1992 and 1994 (Number of Common Items)
4 [Reading–Main] and 4 [Reading–State]	R3	R4, R5, R6, R7, R8, R9, R10; (73)	R4, R5, R6, R7, R10; (55)
8 [Reading–Main] and 8 [Reading–State]	R3, R8	R4, R5, R6, R7, R9, R10, R11, R13*; (90)	R5, R6, R7, R10, R11; (60)
12 [Reading–Main]	R3	R4, R5, R6, R7, R8, R9, R10, R11, R13*, R14*; (111)	R4, R6, R7, R10, R11, R13*; (78)

* 50-minute block

The total number of scaled items was 82, 110, and 118, respectively, for grades 4, 8, and 12. Note that some items overlap across grade. Table 15-3 shows the numbers of items within reading purpose subscales for each grade. The numbers presented in Table 15-3 show item counts both for the original item pool, and after the necessary adjustments were made during scaling (see Section 16.3.2.1).

Table 15-3
Number of Items in Subscales in the Reading Main Assessment, by Reading Purposes

Grade		Literary Experience	Gain Information	Perform a Task	Total
4	Prescaling	41	41	—	82
	Postscaling	41	41	—	82
8	Prescaling	29	48	33	110
	Postscaling	29	48	33	110
12	Prescaling	27	56	36	119
	Postscaling	27	55	36	118

The composition of each block of items by item type is given in Tables 15-4, 15-6, and 15-8. Common labeling of these blocks across grade levels does not necessarily denote common items (e.g., Block R4 at grade 4 does not contain the same items as Block R4 at grade 12). During scaling, some items received specific treatment (for details see Section 16.3). As a result, the composition of each block

² These analyses were identical to those described in *Assessing Some of the Properties of Longer Blocks in the 1992 NAEP Reading Assessment* (Donoghue & Mazzeo, 1995). Additional comparisons based on bootstrap comparisons (Donoghue, 1995) further supported the comparability of the 25- and 50-minute reading blocks.

of items by item type might changed. Tables 15-5, 15-7, and 15-9 present the final block composition by item type as defined after scaling.

Table 15-4
*1998 NAEP Reading Block Composition by Purpose for Reading and Item Type
As Defined Before Scaling, Grade 4*

Block	Purpose for Reading	Multiple-Choice Items	Constructed-Response Items			Total Items
			2-category*	3-category	4-category	
Total		36	27	11	8	82
R3	Literary	3	3	2	1	9
R4	Literary	5	6	0	1	12
R5	Literary	7	3	0	1	11
R6	Information	5	4	0	1	10
R7	Information	4	5	0	1	10
R8	Information	3	0	5	1	9
R9	Literary	3	1	4	1	9
R10	Information	6	5	0	1	12

* For a small number of constructed-response items, adjacent categories were combined.

Table 15-5
*1998 NAEP Reading Block Composition by Purpose for Reading and Item Type
As Defined After Scaling, Grade 4*

Block	Purpose for Reading	Multiple-Choice Items	Constructed-Response Items			Total Items
			2-category*	3-category	4-category	
Total		36	27	13	6	82
R3	Literary	3	3	2	1	9
R4	Literary	5	6	1	0	12
R5	Literary	7	3	0	1	11
R6	Information	5	4	0	1	10
R7	Information	4	5	0	1	10
R8	Information	3	0	6	0	9
R9	Literary	3	1	4	1	9
R10	Information	6	5	0	1	12

* For a small number of constructed-response items, adjacent categories were combined.

Table 15-6
*1998 NAEP Reading Block Composition by Purpose for Reading and Item Type
 As Defined Before Scaling, Grade 8*

Block	Purpose for Reading	Multiple-Choice Items	Constructed-Response Items			Total Items
			2-category*	3-category	4-category	
Total		41	32	25	12	110
R3	Literary	3	2	4	1	10
R4	Literary	1	1	5	1	8
R5	Literary	7	3	0	1	11
R6	Information	5	5	0	2	12
R7	Information	6	6	0	1	13
R8	Information	4	1	4	1	10
R9	Task	4	0	5	0	9
R10	Task	4	6	0	2	12
R11	Task	3	8	0	1	12
R13	Information	4	0	7	2	13

* For a small number of constructed-response items, adjacent categories were combined.

Table 15-7
*1998 NAEP Reading Block Composition by Purpose for Reading and Item Type
 As Defined After Scaling, Grade 8*

Block	Purpose for Reading	Multiple-Choice Items	Constructed-Response Items			Total Items
			2-category*	3-category	4-category	
Total		41	35	25	9	110
R3	Literary	3	3	3	1	10
R4	Literary	1	1	5	1	8
R5	Literary	7	3	0	1	11
R6	Information	5	5	0	2	12
R7	Information	6	6	0	1	13
R8	Information	4	1	4	1	10
R9	Task	4	1	4	0	9
R10	Task	4	7	1	0	12
R11	Task	3	8	1	0	12
R13	Information	4	0	7	2	13

* For a small number of constructed-response items, adjacent categories were combined.

Table 15-8
*1998 NAEP Reading Block Composition by Purpose for Reading and Item Type
As Defined Before Scaling, Grade 12*

Block	Purpose for Reading	Multiple-Choice Items	Constructed-Response Items			Total Items
			2-category*	3-category	4-category	
Total		43	35	28	13	119
R3	Literary	3	2	4	1	10
R4	Literary	3	5	0	1	9
R5	Literary	1	0	6	1	8
R6	Information	5	5	0	2	12
R7	Information	5	6	0	1	12
R8	Information	1	0	6	1	8
R9	Task	4	0	5	0	9
R10	Task	4	6	0	2	12
R11	Task	7	7	0	1	15
R13	Information	10	4	0	2	16
R14	Information	0	0	7	1	8

* For a small number of constructed-response items, adjacent categories were combined.

Table 15-9
*1998 NAEP Reading Block Composition by Purpose for Reading and Item Type
As Defined After Scaling, Grade 12*

Block	Purpose for Reading	Multiple-Choice Items	Constructed-Response Items			Total Items
			2-category*	3-category	4-category	
Total		43	39	28	8	118
R3	Literary	3	3	3	1	10
R4	Literary	3	5	1	0	9
R5	Literary	1	0	6	1	8
R6	Information	5	5	0	2	12
R7	Information	5	7	0	0	12
R8	Information	1	0	6	1	8
R9	Task	4	1	4	0	9
R10	Task	4	7	1	0	12
R11	Task	7	7	1	0	15
R13	Information	10	4	0	2	16
R14	Information	0	0	6	1	7

* For a small number of constructed-response items, adjacent categories were combined.

To ensure the quality of the administration in the state assessment, the sampling contractor Westat monitored some of the sampled schools. As described in Chapter 5, a randomly selected portion of the administration sessions within each jurisdiction were observed by Westat-trained quality control monitors. Thus, within and across jurisdictions, randomly equivalent samples of students received each block of items under monitored and unmonitored administration conditions. For most jurisdictions the monitored rate was about 25 percent of the schools. Since Kansas was new to the state assessment, 50 percent of the sessions were monitored.

15.3 SCORING CONSTRUCTED-RESPONSE ITEMS

A block consisted of one or two reading passages, each followed by several items. In addition to multiple-choice items, each block contained a number of constructed-response items, accounting for well over half of the testing time. Constructed-response items were scored by specially trained readers (described in Chapter 7). Some of the constructed-response items required only a few sentences or a paragraph response. These short constructed-response items were scored dichotomously as correct or incorrect. Other constructed-response items required somewhat more elaborated responses, and were scored polytomously on a 3-point (0–2) scale:

- 0 = Unsatisfactory (and omit)
- 1 = Partial
- 2 = Complete

In addition, most blocks (except one) contained at least one constructed-response item that required a more in-depth, elaborated response. These items were scored polytomously on a 4-point (0-3) scale:

- 0 = Unsatisfactory (and omit)
- 1 = Partial
- 2 = Essential
- 3 = Extensive, which demonstrates more in-depth understanding

Originally, the scoring guides for 3-point constructed-response items and 4-point constructed-response items separated the “unsatisfactory” from the “omit” responses, with omits and off-task responses forming a category below the “unsatisfactory” responses (the treatment of items that were not reached is discussed below in Section 16.2.1). During the 1992 scaling process, it was discovered that this scoring rule resulted in unexpectedly poor fit to the IRT model. After much investigation, the 0 category (omitted and off-task responses) was recoded. Off-task responses were treated as “not administered” for each of the items, and omitted responses were combined with the next lowest category, “unsatisfactory.” For new items (administered for the first time in 1998), decisions concerning the treatment of omit and off-task responses were reexamined and found to be appropriate for these new items.

In addition, adjacent categories of a small number of constructed-response items were combined (collapsed). These changes were made so that the scaling model used for these items fit the data more closely, and are described more fully in Section 16.3.2.2. Some of the short-term trend items had been collapsed in the original 1994 scaling. These items were collapsed in an identical manner for the 1998 assessment. New items (unique to 1998) were also examined, and where necessary, adjacent categories were collapsed.

Reliability of constructed-response scoring was calculated within year (1998) and across years (1994 and 1998). Interrater and trend scoring reliability information is provided in Appendix C.

15.4 DIF ANALYSIS

A differential item functioning (DIF) analysis of new items (administered for the first time in 1998) was done to identify potentially biased items that were differentially difficult for members of various subgroups with comparable overall scores. Sample sizes were large enough to compare male and female students, White and Black students, and White and Hispanic students. Appendix A specifies the sample size for each of these groups (see Table A-7). The purpose of these analyses was to identify items that should be examined more closely by a committee of trained test developers and subject-matter specialists for possible bias and consequent exclusion from the assessment. The presence of DIF in an item means that the item is differentially harder for one group of students than another, while controlling for the ability level of the students. DIF analyses were conducted separately by grade for national samples.

A similar DIF analysis was not conducted on the state data, since the results of the national DIF analysis were assumed to hold for the state sample. However, DIF analyses were carried out on 1998 state reading samples at both grade 4 and grade 8 to check items that were not differentially difficult for students between public and nonpublic schools with comparable overall scores. (The nonpublic-school population that was sampled included students from Catholic schools, private religious schools, and private nonreligious schools [all referred to by the term “nonpublic schools”].) Since the participation of nonpublic schools was less than public schools, the data included in the scaling process were only those from public schools. The results of DIF analyses were used to examine the appropriateness of the parameters of IRT models, based on public-school data, for the nonpublic-school data.

For dichotomous items, the Mantel-Haenszel procedure as adapted by Holland and Thayer (1988) was used as a test of DIF (this is described in Chapter 9). The Mantel procedure (Mantel, 1963) as described by Zwick, Donoghue, and Grima (1993) was used for detection of DIF in polytomous items. This procedure assumes that item scores are appropriately treated as ordered categories. SIBTEST (Shealy & Stout, 1993) was also used in the DIF analyses for the first time in NAEP.

For dichotomous items, the DIF index generated by the Mantel-Haenszel procedure is used to place items into one of three categories: “A,” “B,” or “C.” “A” items exhibit little or no evidence of DIF, while “C” items exhibit a strong indication of DIF and should be examined more closely. Positive values of the index indicate items that are differentially easier for the “focal” group (female, Black, or Hispanic students) than for the “reference” group (male or White students). Similarly, negative values indicate items that are differentially harder for the focal group than for the reference group. An item that was classified as a “C” item in *any* analysis was considered to be a “C” item. For details, see Section 9.3.4.

For polytomous items (regular constructed-response items and extended constructed-response items), the Mantel statistic provides a statistical test of the hypothesis of no DIF. A categorization similar to that described for dichotomous items was developed to classify items (this is discussed in detail in Donoghue, 2000). Polytomous items were placed into one of three categories: “AA,” “BB,” or “CC” similar to dichotomous items. “AA” items exhibit no DIF, while “CC” items exhibit a strong indication of DIF and should be examined more closely. The classification criterion for polytomous items is presented in Donoghue (2000). As with dichotomous items, positive values of the index indicate items that are differentially easier for the “focal” group (female, Black, or Hispanic students) than for the reference group (male or White students). Similarly, negative values indicate items that are differentially harder for the focal group than for the reference group. An item that was classified as a “CC” item in *any* analysis was considered to be a “CC” item.

For the national samples, Table 15-10 summarizes the results of DIF analyses for dichotomously scored items in the new blocks. One “C” item as showing significant DIF in favor of male students was identified in grade 8 by the Mantel-Haenszel procedure.

Table 15-10
DIF Category for National Samples by Grade for Dichotomous Items

Grade	DIF Category *	Analysis		
		Male/Female	White/Black	White/Hispanic
4	C-	0	0	0
	B-	0	0	0
	A-	5	4	4
	A+	1	1	1
	B+	0	1	1
	C+	0	0	0
8	C-	1	0	0
	B-	0	0	0
	A-	5	5	6
	A+	4	5	4
	B+	0	0	0
	C+	0	0	0
12	C-	0	0	0
	B-	0	1	0
	A-	5	1	1
	A+	0	2	4
	B+	0	1	0
	C+	0	0	0

* Positive values of the index indicate items that are differentially easier for the focal group (female, Black, or Hispanic students) than for the reference groups (male or White students). “A+” or “A-” means no indication of DIF, “B+” means a weak indication of DIF in favor of the focal group, “B-” means a weak indication of DIF in favor of the reference group, and “C+” or “C-” means a strong indication of DIF.

Table 15-11 summarizes the results of DIF analyses for polytomously scored items. No “CC” item was identified in the new blocks by the Mantel procedure. The only item that SIBTEST flagged as showing significant DIF is *exactly* the “C” item identified by the MH procedure. An independent reviewer examined the “C” item whose DIF statistics indicate that it favors males. The reviewer found no reason for its being biased for or against any group. Therefore, this item was not removed from scaling due to DIF.

In the analysis of DIF between public and nonpublic schools for the state assessment, Table 15-12 summarizes the results for dichotomous items. The focal group consists of students from nonpublic schools. Positive values indicate items that were differentially easier for the focal group. Table 15-13 summarizes the results for polytomous items. As for dichotomous items, the focal group consists of students from nonpublic schools and positive values indicate that the item was differentially easier for the focal group. To aid in interpreting the results for polytomous items, the standardized mean difference between focal and reference groups was produced. This statistic was rescaled by dividing the standardized mean differences by the standard deviation of the respective item. The description of this procedure can be found in Chapter 12. For polytomous items, a standardized mean difference ratio of .25 or greater (coupled with a significant Mantel statistic) was considered a strong indication of DIF. It can

be shown that standardized mean difference ratios of .25 are at least as extreme as Mantel-Haenszel statistics corresponding to “C” items (Donoghue, 1998a).

Table 15-11
DIF Category for National Samples by Grade for Polytomous Items

Grade	DIF Category*	Analysis		
		Male/Female	White/Black	White/Hispanic
4	CC-	0	0	0
	BB-	0	0	0
	AA-	2	2	0
	AA+	1	1	3
	BB+	0	0	0
	CC+	0	0	0
8	CC-	0	0	0
	BB-	0	0	1
	AA-	5	3	2
	AA+	5	6	7
	BB+	0	1	0
	CC+	0	0	0
12	CC-	0	0	0
	BB-	0	0	1
	AA-	2	3	2
	AA+	3	1	2
	BB+	0	1	0
	CC+	0	0	0

* Positive values of the index indicate items that are differentially easier for the focal group (female, Black, or Hispanic students) than for the reference groups (male or White students). “AA+” or “AA-” means no indication of DIF, “BB+” means a weak indication of DIF in favor of the focal group, “BB-” means a weak indication of DIF in favor of the reference group, and “CC+” or “CC-” means a strong indication of DIF.

For the dichotomous items, at grade 4, there were 82 items analyzed from two scales and, at grade 8, there were 110 items from three scales. Table 15-12 gives the number of items in each of six categories (C+, B+, A+, A-, B-, C-) for the comparison. No dichotomous items were classified as “C” items for any of the analyses for both fourth- and eighth-grade state reading assessment data. All the dichotomous items were classified as A+ or A- in the comparisons.

Table 15-12

*The Category of DIF between Public and Nonpublic Schools
for State Samples, by Grade for Dichotomous Items*

Grade	DIF	Analysis
	Category*	Public/Nonpublic
4	C-	0
	B-	0
	A-	33
	A+	30
	B+	0
	C+	0
8	C-	0
	B-	0
	A-	33
	A+	40
	B+	0
	C+	0

* Positive values of the index indicate items that are differentially easier for the focal group (nonpublic) than for the reference groups (public). "A+" or "A-" means no indication of DIF, "B+" means a weak indication of DIF in favor of the focal group, "B-" means a weak indication of DIF in favor of the reference group, and "C+" or "C-" means a strong indication of DIF.

For the polytomous items, there were 19 polytomous from grade 4 and 37 items from grade 8. Table 15-13 is in a format similar to that of Table 15-12, showing items in six categories (CC+, BB+, AA+, AA-, BB-, CC-). All the polytomous items were classified as "AA" for the analyses for both fourth- and eighth-grade state reading assessment data; no polytomous items were classified as "BB" or "CC" items.

Because no DIF items were found in the public and nonpublic comparisons for both fourth- and eighth-grade data, the results of IRT scaling, based on public-school data, were applied to nonpublic-school data.

Table 15-13
*The Category of DIF between Public and Nonpublic Schools
 for State Samples, by Grade for Polytomous Items*

Grade	DIF Category *	Analysis Public/Nonpublic
4	CC-	0
	BB-	0
	AA-	9
	AA+	10
	BB+	0
	CC+	0
8	CC-	0
	BB-	0
	AA-	25
	AA+	12
	BB+	0
	CC+	0

* Positive values of the index indicate items that are differentially easier for the focal group (nonpublic) than for the reference groups (public). "AA+" or "AA-" means no indication of DIF, "BB+" means a weak indication of DIF in favor of the focal group, "BB-" means a weak indication of DIF in favor of the reference group, and "CC+" or "CC-" means a strong indication of DIF.

15.5 THE WEIGHT FILES

For the 1998 reading assessments, Westat produced files of final student and school weights and corresponding replicate weights for both national and state samples. Information for the creation of the weight files was supplied by National Computer Systems (NCS) under the direction of Educational Testing Service (ETS). Because both the national and state samples were split into two subsamples, one using the revised inclusion rules for SD/LEP students (S2) and one using the revised inclusion rules and accommodations for SD/LEP students (S3), the weighting process was more complex than in previous assessments. Westat provided student files and school files to ETS for the assessments.

The student weight files contained one record for every student who was not classified as SD or LEP; the weight files contained two records for every student who was classified as SD or LEP. Each record had a full set of weights, including replicate weights. The first set of weights for the SD and LEP students is to be used when estimating results for either S2 or S3 alone. The second set of weights provided for those students is to be used when estimating results for students from both S2 and S3 together. (See Chapters 3 and 10 for more information about the sampling and weighting procedures for the S2 and S3 samples.)

From the student weight files, ETS constructed three sets of student weights, called modular weights, reporting weights, and all-inclusive weights. The modular weights were used when examining S2 and S3 separately, or for comparing S2 to S3. The reporting weights, used for most reports, were used when reporting results for the students in reading who were not classified as being SD or LEP in both S2 and S3 and the students classified as SD or LEP from S2 only. The reporting sample was formed so that unbiased estimation and valid comparisons with previous NAEP assessments could be made. The SD/LEP students were divided into two types, those who were assessed and those who could not be assessed (called excluded students). The all-inclusive weights were used for estimating results for both S2 and S3 together.

The reporting weights were formed from the student weight files by taking the records for students not classified as SD or LEP, the first record in the weight file for students in S2 classified as SD or LEP, and a record containing a missing value code for the students in S3 classified as SD or LEP. In this way, the old inclusion rules used with the students classified as SD or LEP in S3 would not affect the reading results of the 1998 state assessment. For the modular weights, all students approximately from that sample (S2 or S3) not classified as SD or LEP had their final and replicate weights proportionally increased (doubled), while the first record in the weight file for each SD/LEP student from the appropriate sample (S2 or S3) was selected directly from the student weight files. It is important to note that the samples should be separated into the S2 and S3 subsamples when using weights generated in this way. To analyze data from S2 and S3 together, the all-inclusive weights should be used. They were created from the student weight files by taking the records for the students not classified as SD or LEP, and the second records for all students classified as SD or LEP.

For the reporting sample for the state assessments, two other weights were created. These are called “house weights” and “senate weights.” As with the respective branches of Congress, these weights represent jurisdictions in two different ways. The house weights weight the student records within a jurisdiction so that the sum of the weights for each jurisdiction is proportional to the fraction of the national in-grade enrollment in that jurisdiction. The senate weights weight the student records within a jurisdiction so that the sums of the weights for each jurisdiction are approximately equal to each other. In other words, a jurisdiction like California, with many eighth-grade students, and a jurisdiction like Rhode Island, with fewer eighth-grade students, would have equal weight when all of the state assessment data are combined. Both of these sets of weights are constructed only for the reporting sample. The reporting sample and either the house or senate weights are used during scaling, conditioning, and all major reporting.

The house weight is the student’s reporting weight times a factor, which is the number of public-school students sampled over the sum of the reporting weights of the public-school students in all the jurisdictions. The senate weight is calculated for each jurisdiction separately. Within each jurisdiction a factor, which is 2,500 divided by the sum of the reporting weights of the jurisdiction’s public-school students, is computed. (In previous state assessments, 2,000 was used.) The reporting weights for students in both public and nonpublic schools are multiplied by this factor to create the senate weights. For DoDEA/DDESS³ and DoDEA/DoDDS⁴ jurisdictions, all schools were considered public in the calculation of these factors.

Accordingly, there are three sets of weights (modular, reporting, and all-inclusive weights) for the national assessments and, for the state assessments, there are five sets of weights (modular, reporting, house, senate, and all-inclusive weights). Each set of weights has replicate weights associated with it. Replicate weights are used to estimate jackknife standard errors for each statistic estimated.

In addition to student weights, school weights are available for use in school-level analyses. These weights are modular weights for use when examining S2 and S3 separately or for comparing S2 to S3. No other school weights are available. School-level statistics should be calculated on the basis of S2 or S3 subsamples, as opposed to the reporting sample. If school-level statistics are calculated for the reporting sample, biases might occur.

³ Department of Defense Education Activity /Department of Defense Elementary and Secondary Schools (DoDEA/DDESS) comprise the NAEP jurisdiction for domestic Department of Defense schools.

⁴ Department of Defense Education Activity /Department of Defense Dependents Schools (DoDEA/DoDDS) comprise the NAEP jurisdiction for overseas Department of Defense schools.

Chapter 16

DATA ANALYSIS OF THE NATIONAL READING ASSESSMENT¹

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16.1 INTRODUCTION

This chapter describes the analyses performed on the responses to the cognitive and background items in the 1998 national assessment of reading. These analyses led to the results presented in Chapters 1 through 4 of the *NAEP 1998 Reading: Report Card for the Nation and the States* (Donahue et al., 1999). The emphasis of this chapter is on the methods and results of procedures used to develop the IRT-based scale scores that formed the basis of these chapters in that report. However, some attention is given to the analysis of constructed-response items as reported in the *NAEP 1998 Reading: Report Card for the Nation and the States*. The theoretical underpinnings of the IRT and plausible values methodology described in this chapter are given in Chapter 12, and several of the statistics are described in Chapter 9.

The major analysis components are discussed in turn. Some aspects of the analysis, such as procedures for item analysis, scoring of constructed-response items, and methods of scaling, are described in previous chapters and are therefore not detailed here. There were five major steps in the analysis of the reading data, each of which is described in a separate section:

1. Conventional item and test analyses (Section 16.2.1)
2. Item response theory (IRT) scaling (Section 16.3)
3. Estimation of national and subgroup scale score distributions based on the “plausible values” methodology (Section 16.4)
4. Transformation of the purposes-for-reading scales to the 1994 scale score metric (Section 16.5)
5. Creation of the reading composite scale (Section 16.5.2)

Section 16.6 describes the results of partitioning the error variance; 16.7 discusses the matching of student responses to those of their teachers.

16.2 NATIONAL ITEM ANALYSES

16.2.1 Conventional Item and Test Analyses

This section contains a detailed description of the conventional item analysis performed on the national reading data. This analysis was done within block so that a student’s score is the sum of item scores in a block. In forming the block total score, dichotomous items (multiple-choice and 2-category constructed-response items) were scored as right or wrong; polytomous items were not scored as right or wrong but were scored with three or more categories reflecting several degrees of knowledge.

¹ Jinming Zhang was the primary person responsible for the planning, specification, and coordination of the national reading analyses. Computing activities for all reading scaling and data analyses were directed by Steven P. Isham and completed by Lois H. Worthington. Others contributing to the analysis of reading data were David S. Freund, Bruce A. Kaplan, Norma A. Norris, and Katharine E. Pashley.

Tables 16-1, 16-2, and 16-3 show the number of items in the block, the average weighted item score, average weighted polyserial correlation, and the weighted alpha reliability for each block administered. These statistics are described in Chapter 9. These values were calculated for the items within each block used in the scaling process. The tables also give the number of students who were administered the block and the percentage of students not reaching the last item in the block. These numbers include only those students who contributed to the summary statistics provided in the *NAEP 1998 Reading: Report Card for the Nation and the States*, Chapter 1 through Chapter 4. Student weights were used for all statistics, except for the sample sizes. The results for the blocks administered to each grade level indicate that the blocks differ in number of items, average difficulty, reliability, and percent not reaching the last item, and so are not parallel to each other. Preliminary item analyses for all items within a block were completed before scaling; however, the results shown here indicate the characteristics of the items that contributed to the final scale, and reflect decisions made in scaling to combine adjacent categories (collapse) for a small number of items.

As described in Chapter 12, in NAEP analyses (both conventional and IRT-based), a distinction is made between missing responses at the end of each block (not reached) and missing responses prior to the last observed response (omitted). Items that were not reached were treated as if they had not been presented to the examinee, while omitted items were regarded as incorrect. The proportion of students attempting the last item of a block (or, equivalently, one minus the proportion not reaching the last item) is often used as an index of the degree of speededness of the block of items.

Standard practice at ETS is to treat all nonrespondents to the last item as if they had not reached the item. For multiple-choice items, short constructed-response items, and regular constructed-response items (3-category), this convention produced a reasonable pattern of results, in that the proportion reaching the last item does not differ markedly from the proportion attempting the next-to-last item. However, for the blocks that ended with extended constructed-response items (4-category), this convention resulted in an implausibly large drop in the number of students attempting the final item. Therefore, for blocks that ended with an extended constructed-response item, students who attempted the next-to-last item but did not respond to the last item were classified as having intentionally omitted that item. Therefore, this item was regarded as incorrect.

The results in Tables 16-1 to 16-3 indicate that the difficulty and internal consistency of the blocks varied. Such variability is expected, because the blocks were not constructed to be parallel. Based on the proportion of students attempting the last item, all of the blocks appear to be somewhat speeded. This effect is larger for grade 4 than for the other grades.

Small but consistent differences were noted based on whether a block appeared first or second within a booklet. When the block appeared first in the booklet, the average item score tended to be higher and the average polyserial correlation tended to be lower. The largest differences were noted in the proportion of students not attempting the last item in the block; more students attempted the last item when the block appeared in the second position. It appears that students learned to pace themselves through the second block, based on their experience with the first block. Recall that the design of the reading assessment is not completely balanced. Thus, when these serial position effects were first noticed, it was feared that they might adversely affect the results of the IRT scaling. As part of the analysis of the 1992 reading assessment, a special study was completed to examine the effects of the serial position differences. The serial position effects were found to have minimal results on the scaling, most likely due to the balance of the partial BIB design of the booklets. The effects portrayed in Tables 16-1 through 16-3 are similar in size to the effects observed in the 1992 reading assessment, and were therefore unlikely to produce adverse effects on the final IRT scaling.

Table 16-1
Descriptive Statistics for Item Blocks by Position Within Test Booklet and Overall Occurrences for the National Main Reading Sample, Grade 4, As Defined After Scaling

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10
Number of Scaled Items		9	12	11	10	10	9	9	12
Unweighted Sample Size	First	952	949	960	961	942	962	964	927
	Second	971	945	929	959	933	944	942	977
	Both	1,923	1,894	1,889	1,920	1,875	1,906	1,906	1,904
Weighted Average Item Score	First	.49	.64	.48	.59	.45	.52	.62	.66
	Second	.47	.63	.43	.57	.41	.49	.61	.63
	Both	.48	.64	.45	.58	.43	.51	.61	.64
Weighted Average R-Polyserial	First	.64	.68	.63	.60	.68	.63	.62	.65
	Second	.65	.68	.63	.62	.69	.65	.67	.65
	Both	.64	.68	.63	.61	.68	.64	.64	.65
Weighted Alpha Reliability	First	.69	.80	.76	.71	.74	.72	.76	.78
	Second	.69	.79	.73	.71	.74	.74	.76	.76
	Both	.69	.80	.75	.71	.74	.73	.76	.77
Weighted Proportion of Students Attempting Last Item	First	.67	.61	.76	.72	.60	.71	.65	.79
	Second	.82	.73	.82	.84	.75	.79	.82	.89
	Both	.75	.67	.79	.78	.67	.75	.74	.84

Table 16-2
Descriptive Statistics for Item Blocks by Position Within Test Booklet and Overall Occurrences for the National Main Reading Sample, Grade 8, As Defined After Scaling

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10	R11	R13*
Number of Scaled Items		10	8	11	12	13	10	9	12	12	13
Unweighted Sample Size	First	986	968	1,035	1,034	996	1,016	989	1,016	977	—
	Second	999	1,006	1,000	994	1,004	991	1,037	961	999	—
	Both	1,985	1,974	2,035	2,028	2,000	2,007	2,026	1,977	1,976	2,012
Weighted Average Item Score	First	.43	.45	.67	.57	.69	.49	.61	.61	.69	—
	Second	.41	.41	.67	.54	.66	.47	.60	.59	.68	—
	Both	.42	.43	.67	.55	.68	.48	.61	.60	.68	.66
Weighted Average R-Polyserial	First	.68	.61	.73	.65	.70	.59	.69	.61	.72	—
	Second	.69	.64	.70	.64	.72	.65	.69	.62	.74	—
	Both	.68	.63	.71	.65	.71	.62	.69	.62	.73	.60
Weighted Alpha Reliability	First	.76	.67	.77	.72	.79	.66	.70	.73	.81	—
	Second	.76	.71	.75	.72	.80	.74	.73	.71	.81	—
	Both	.76	.70	.76	.72	.79	.70	.72	.72	.81	.73
Weighted Proportion of Students Attempting Last Item	First	.79	.65	.94	.85	.85	.84	.94	.79	.84	—
	Second	.83	.72	.95	.87	.87	.89	.94	.86	.89	—
	Both	.81	.68	.95	.86	.86	.87	.94	.82	.86	.95

* A 50-minute block that comprised an entire booklet.

Table 16-3
Descriptive Statistics for Item Blocks by Position Within Test Booklet and Overall Occurrences for the National Main Reading Sample, Grade 12, As Defined After Scaling

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10	R11	R13*	R14*
Number of Scaled Items		10	9	8	12	12	8	9	12	15	16	7
Unweighted Sample Size	First	967	943	940	965	993	949	965	997	989	—	—
	Second	961	940	949	949	918	973	986	953	965	—	—
	Both	1,928	1,883	1,889	1,914	1,911	1,922	1,951	1,950	1,954	1,923	1,968
Weighted Average Item Score	First	.58	.54	.46	.68	.52	.59	.75	.72	.55	—	—
	Second	.56	.51	.43	.67	.52	.56	.74	.71	.53	—	—
	Both	.57	.52	.44	.68	.52	.58	.75	.72	.54	.64	.42
Weighted Average R-Polyserial	First	.69	.67	.63	.66	.54	.61	.73	.63	.55	—	—
	Second	.70	.69	.66	.70	.59	.63	.76	.66	.60	—	—
	Both	.70	.68	.64	.68	.57	.62	.74	.64	.57	.63	.66
Weighted Alpha Reliability	First	.76	.66	.69	.66	.54	.69	.66	.71	.66	—	—
	Second	.78	.67	.72	.69	.62	.70	.72	.73	.73	—	—
	Both	.77	.66	.71	.67	.58	.70	.69	.72	.70	.79	.66
Weighted Proportion of Students Attempting Last Item	First	.86	.65	.81	.92	.79	.87	.96	.82	.85	—	—
	Second	.90	.74	.83	.91	.86	.91	.95	.89	.83	—	—
	Both	.88	.70	.81	.91	.82	.89	.96	.85	.84	.92	.95

* A 50-minute block that comprised an entire booklet.

16.2.2 Scoring the Constructed-Response Items

As indicated earlier, the reading assessment included constructed-response items. Responses to these items were included in the scaling process. In addition, detailed analyses of the constructed-response items were also conducted, and are summarized in the *NAEP 1998 Reading: Report Card for the Nation and the States*. Chapter 7 provides the ranges for percent agreement between raters for the items as they were originally scored. The percent agreement for the raters and Cohen's (1968) Kappa are given in Appendix C.

16.3 NATIONAL IRT SCALING

16.3.1 Overview of Item Parameter Estimation

In 1992, separate IRT-based scales were developed for each of the purposes for reading identified in the reading framework. As described in Chapter 12, multiple-choice items were fit using a 3PL model. Short constructed-response items were fit using a 2PL model. Regular and extended constructed-response items were fit using a generalized partial-credit model.

For calibration, all items that were not reached were treated as if they had not been presented to the examinees.² Recall that responses to regular and extended constructed-response items that were off-task were also treated as if they had not been presented. The treatment of omitted responses differed according to the item type. Omitted responses to multiple-choice items were treated as fractionally correct (see Chapter 9 and Mislevy & Wu, 1988, for a discussion of these conversions). Omitted responses to short constructed-response items were treated as incorrect, and omitted responses to regular and extended constructed-response items were assigned to the lowest category.

For each purpose of reading, three separate scalings, one for each grade sample, were conducted. The analyses were conducted on the following samples:

- The 1998 grade 4 national main sample with the 1994 grade 4 only national sample
- The 1998 grade 8 national main sample with the 1994 grade 8 only national sample
- The 1998 grade 12 national main sample with the 1994 grade 12 only national sample

That is, item parameters were estimated using combined data from both assessment years. Items that were administered for more than one assessment (trend items) were constrained to have equal item response functions across assessment years. However, some items exhibited clear evidence of functioning differently across assessment years (see discussion in Section 16.3.2.3). These items were treated as separate items for each assessment year.

The calibration was performed using all the available examinees in the reporting sample. Student sampling weights were used for the analysis. For scaling, sampling weights were restandardized to ensure that each assessment year had a similar sum of weights, and so had approximately equal influence in the calibration. Each assessment year's data were treated as a sample from a separate subpopulation. Thus, separate scale score distributions were estimated for each assessment year.

Item responses were calibrated using the BILOG/PARSCALE program. Starting values were computed from item statistics based on the entire data set. BILOG/PARSCALE calibrations were done in

² An exception to this rule was the treatment of extended constructed-response items at the end of the block. See Section 16.2.1 for a discussion.

two stages. At stage one, the scale score distribution of each assessment year was constrained to be normally distributed, although the means and variances differed across assessments. The values of the item parameters from this normal solution were then used as starting values for a second-stage estimation run in which the scale score distribution (modeled as a separate multinomial distribution for each assessment) was estimated concurrently with item parameters. Calibration was concluded when changes in item parameter estimates became negligibly small.

A complexity introduced by the 50-minute blocks in reading is that those blocks of items must be linked in some way to the shorter blocks. This is complicated by the fact that no students received the shorter blocks in addition to the 50-minute blocks. Because the samples of students receiving each booklet are representative of the population as a whole, it was assumed that the distribution of student scale score was the same for the students receiving the 50-minute blocks as for the students receiving the booklets containing the shorter blocks.

16.3.2 Evaluation of Model Fit

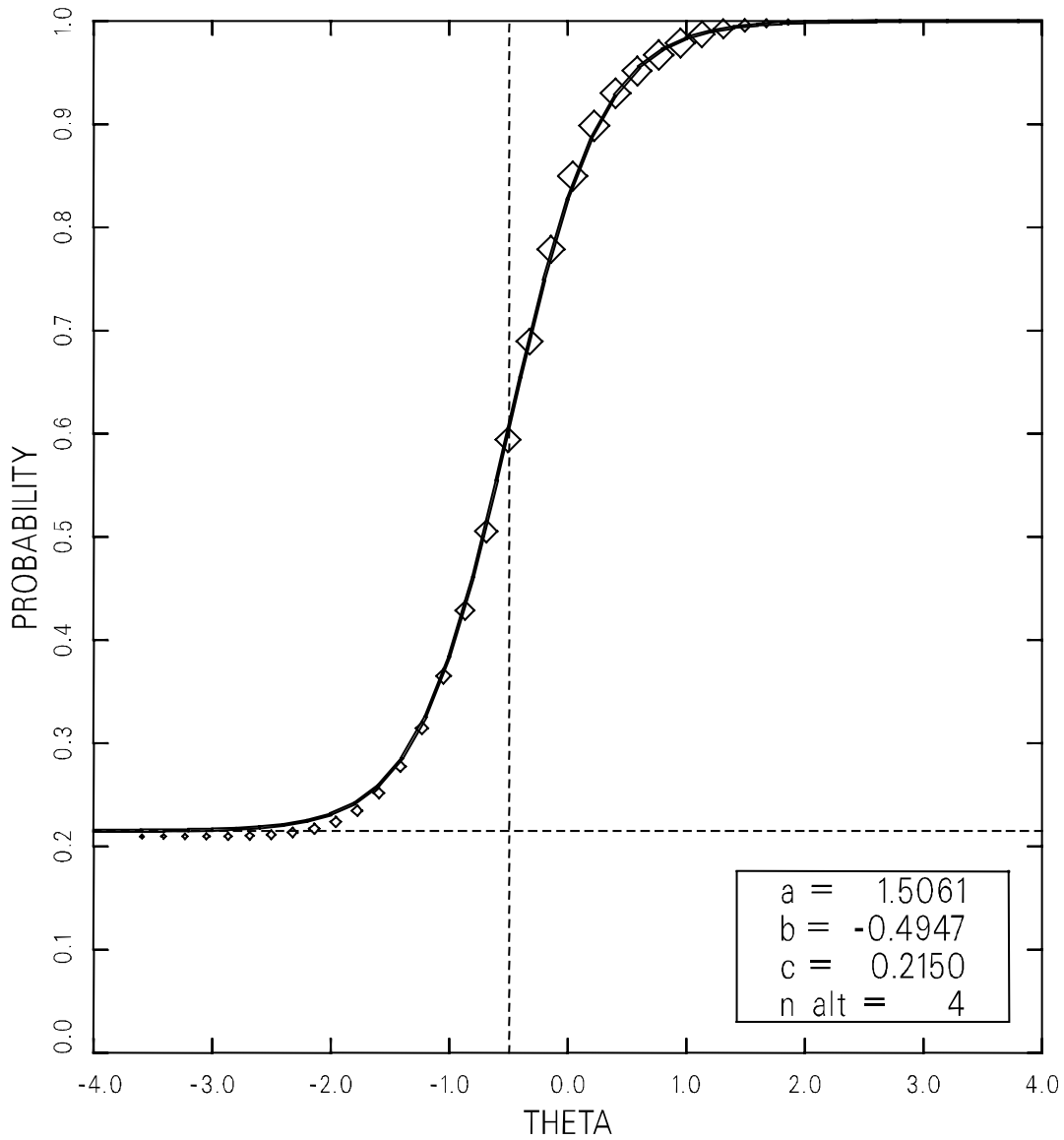
During and subsequent to item parameter estimation, evaluations of the fit of the IRT models were carried out for each of the items. These evaluations were based primarily on graphical analysis. First, model fit was evaluated by examining plots of nonmodel-based estimates of the expected proportion correct (conditional on scale score) versus the proportion correct predicted by the estimated item response function (see Chapter 12 and Mislevy & Sheehan, 1987, p. 302). Figure 16-1 gives an example plot of a multiple-choice item that demonstrates good model fit, R017002, from the Reading for Literary Experience scale at grade 4. For regular and extended constructed-response items, similar plots were produced for each item category response function (see Chapter 12). Figure 16-2 gives an example plot of a regular constructed-response item that demonstrates good model fit, R017104, from the Reading for Literary Experience scale at grade 8. Items that did not fit the model received some treatment (e.g., recoding), or were excluded from the final scales (see the next three subsections for details). Note that the remaining item plots in this section (Figures 16-3 through 16-7) were obtained from preliminary item parameter calibrations. They are presented to reflect the information used to make the decisions discussed in the text. Plots produced from the final item parameters (listed in Appendix E) were very similar to those presented and supported the decisions made.

16.3.2.1 Items Deleted from the Final Scale

In making decisions about excluding items from the final scales, a balance was sought between being too stringent, hence, deleting too many items and possibly damaging the content representativeness of the pool of scaled items, and being too lenient, hence including items with model fit poor enough to endanger the types of model-based inferences made from NAEP results. For the majority of the items, the model fit was extremely good. Items that clearly did not fit the model were not included in the final scales; however, a certain degree of misfit was tolerated for a number of items included in the final scales.

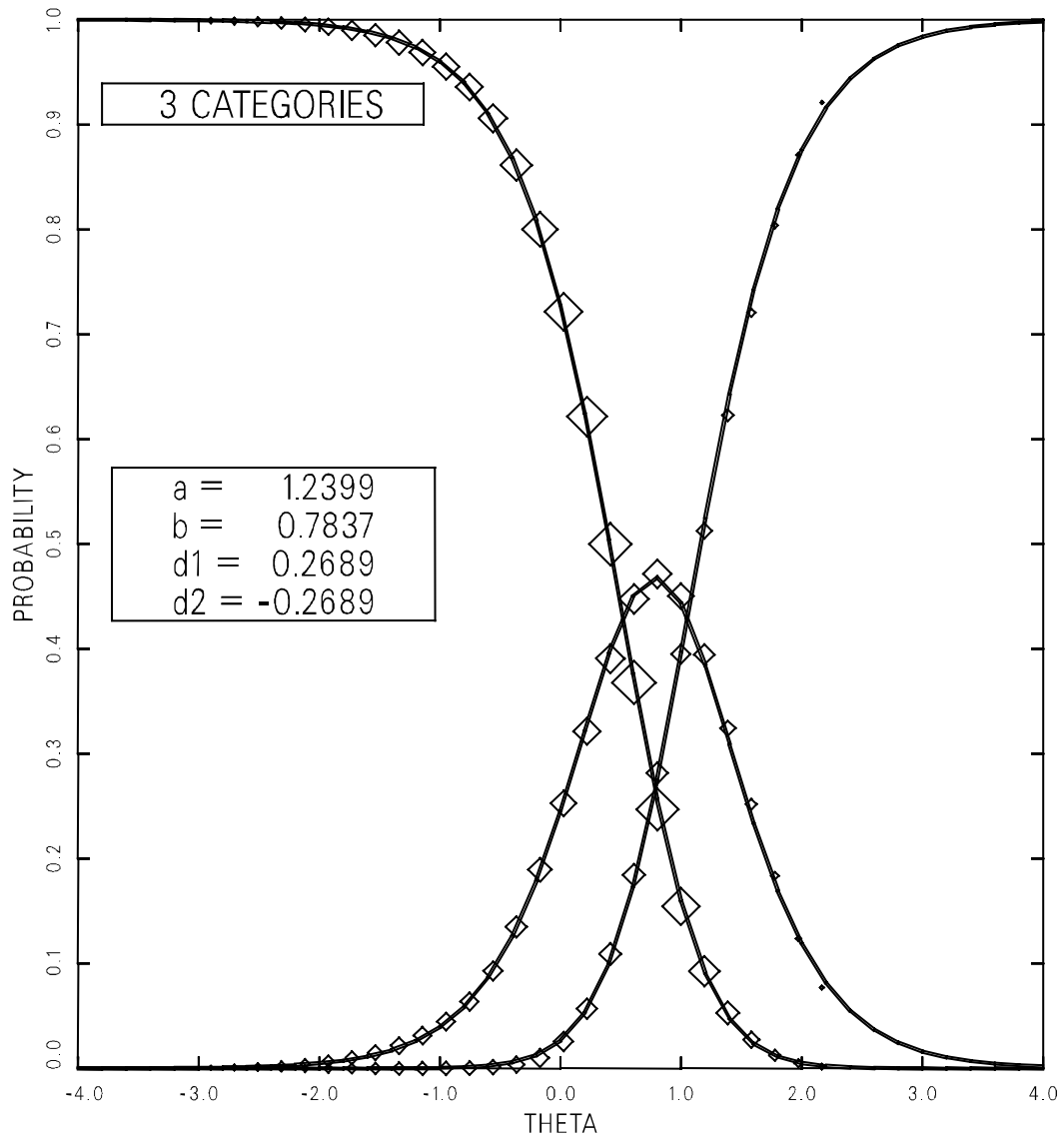
At grade 12, one item from the Reading to Gain Information scale, R016603, was dropped from the final scales due to poor fit to the IRT model in the 1994 reading assessment (See Chapter 12, *The NAEP 1994 Technical Report*, Allen, Kline, & Zelenak, 1997). In the 1998 data analysis, this item was reused to check whether it fitted a model or not, using the 1998 data. Figure 16-3 gives an IRT plot of this item. Category 1 provides virtually no discrimination; the empirical item category response function is essentially flat. Thus, the item was also deleted from the final scales in this analysis. As shown in Table 16-4, this is the only item that was deleted from the final scales in the 1998 reading national data analysis.

Figure 16-1
*Dichotomous Item (R017002) Exhibiting Good Model Fit**



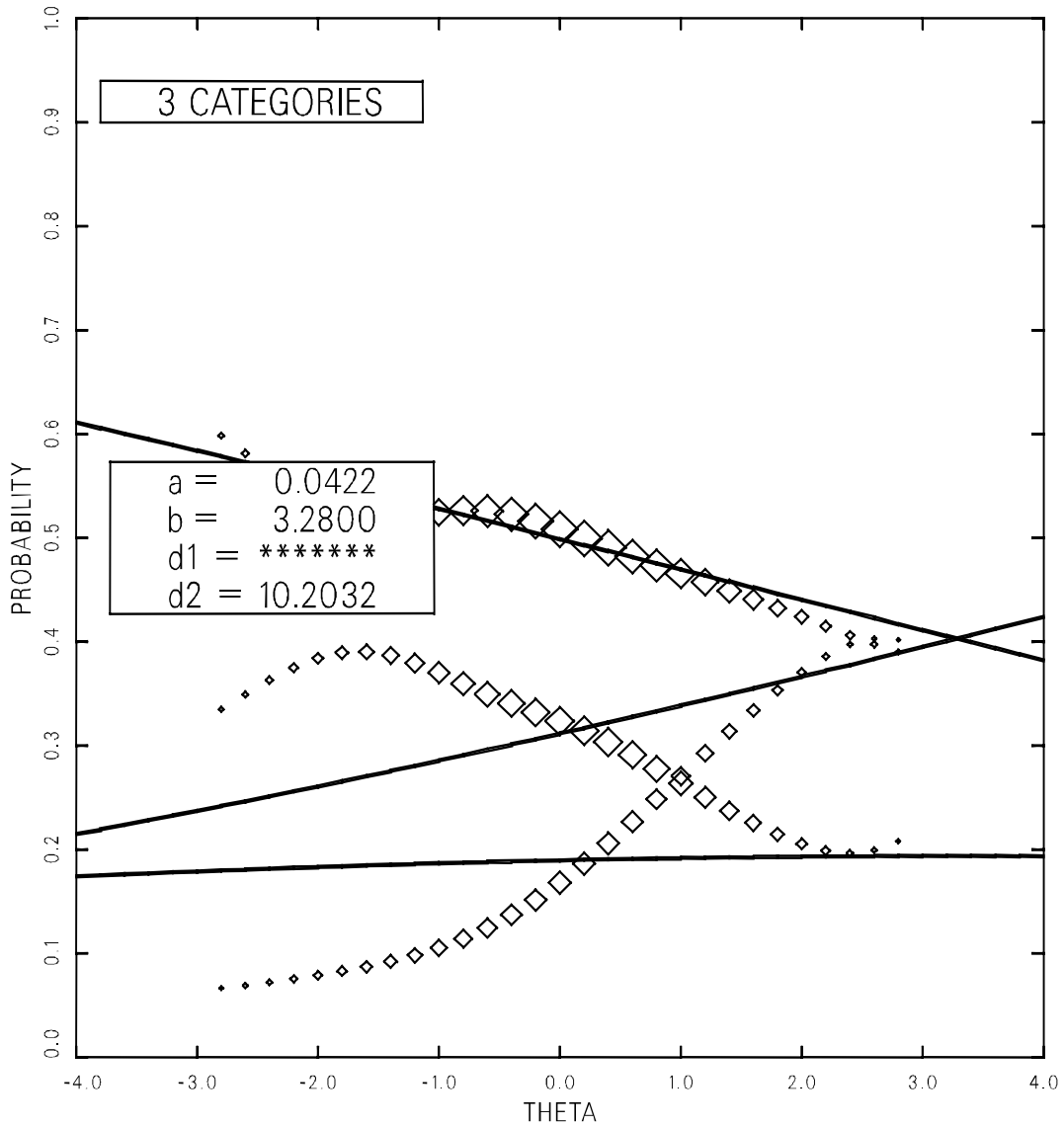
* Diamonds represent 1998 grade 4 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

Figure 16-2
*Polytomous Item (R017104) Exhibiting Good Model Fit**



** Diamonds represent 1998 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

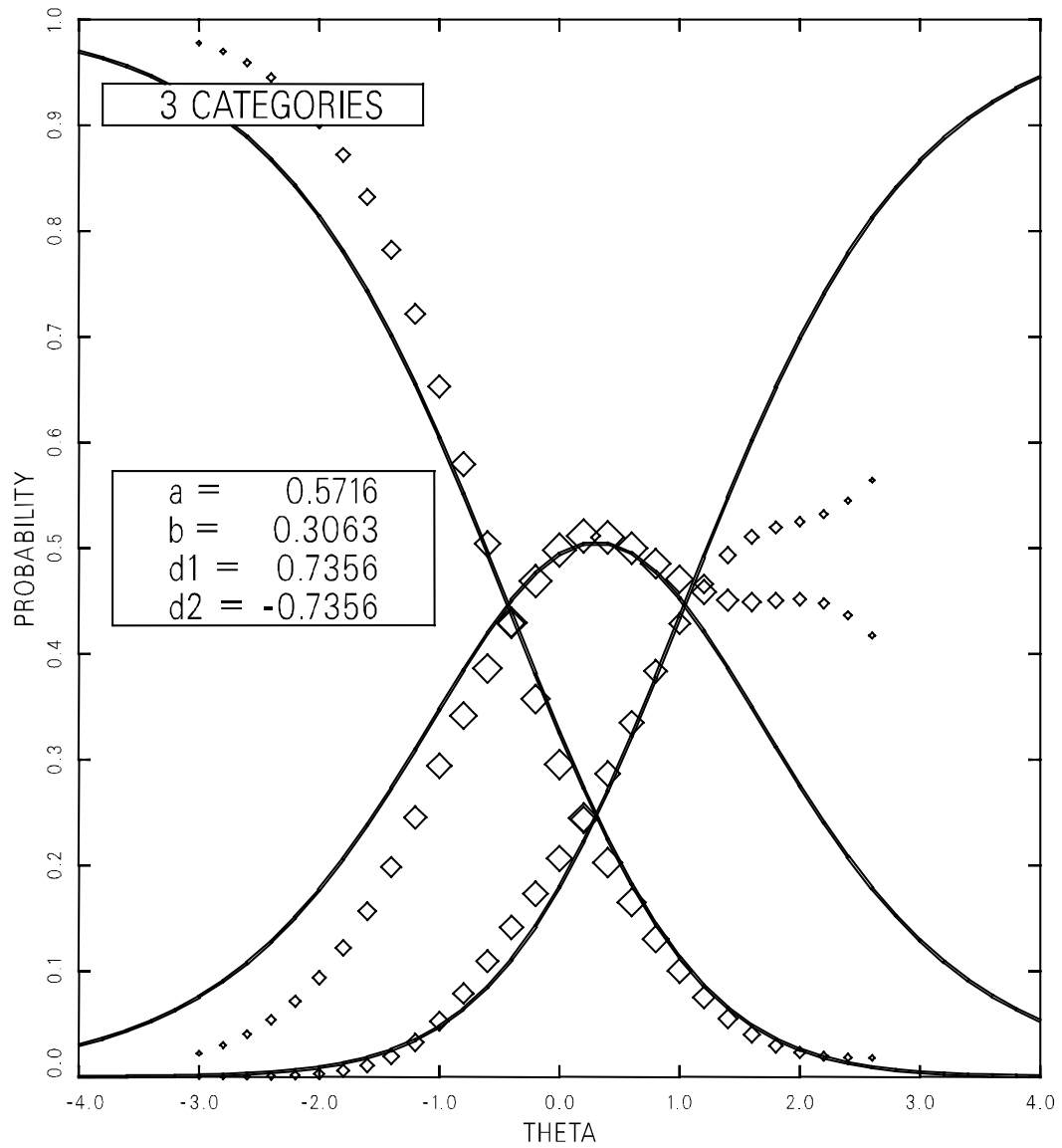
Figure 16-3
*Polytomous Item (R016603) Exhibiting Unacceptably Poor Model Fit**



** Diamonds represent 1998 grade 12 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

Figure 16-4

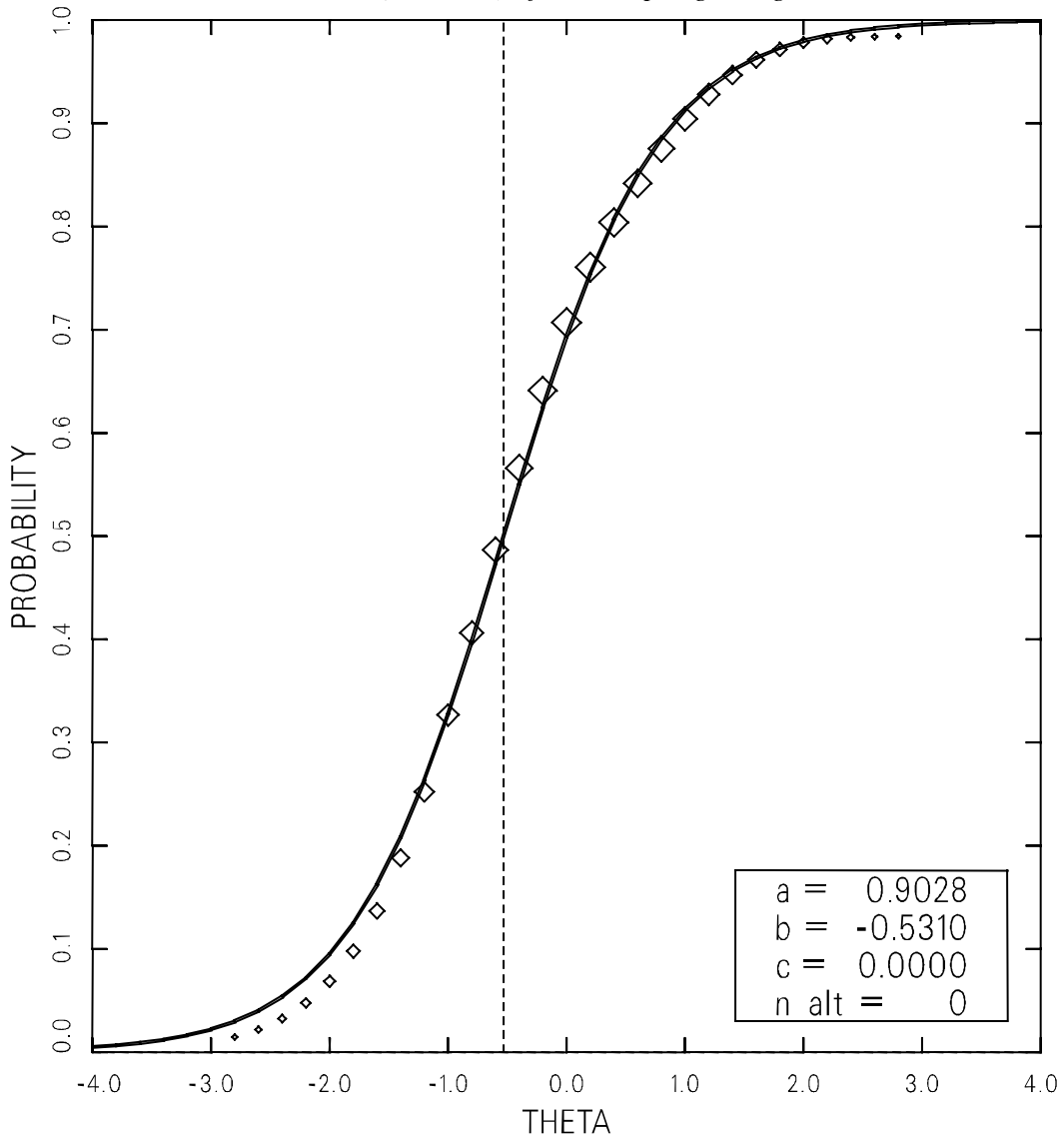
*Polytomous Item (R017110) Exhibiting Poor Model Fit**



** Diamonds represent 1998 grade 12 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

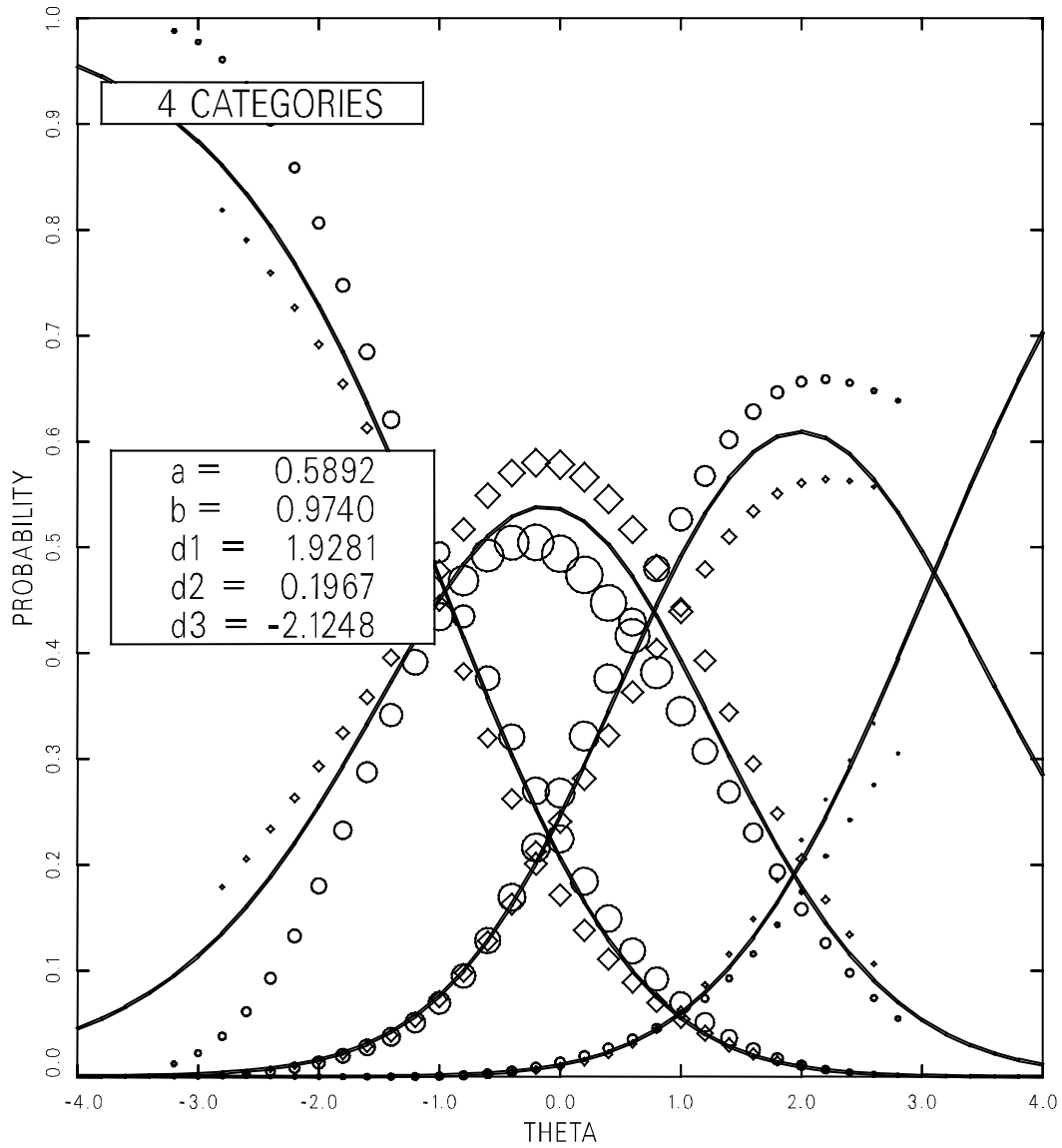
Figure 16-5

*Dichotomous Item (R017110) After Collapsing Categories 1 and 2**



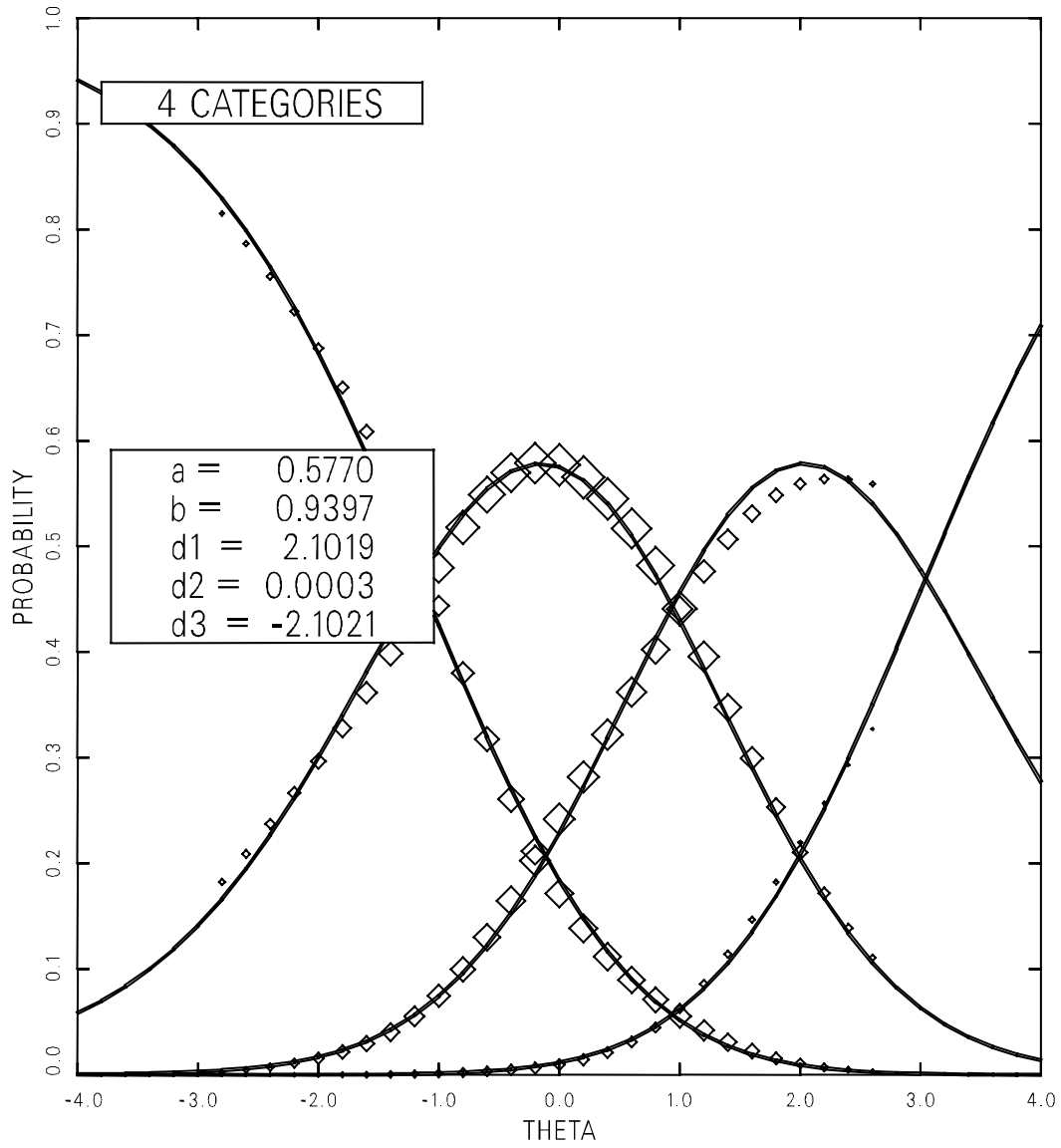
** Diamonds represent 1998 grade 12 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.*

Figure 16-6
Short-Term Trend Polytomous Item (R016210)
 Demonstrating Differential Item Functioning Across Assessment Years 1994 and 1998*



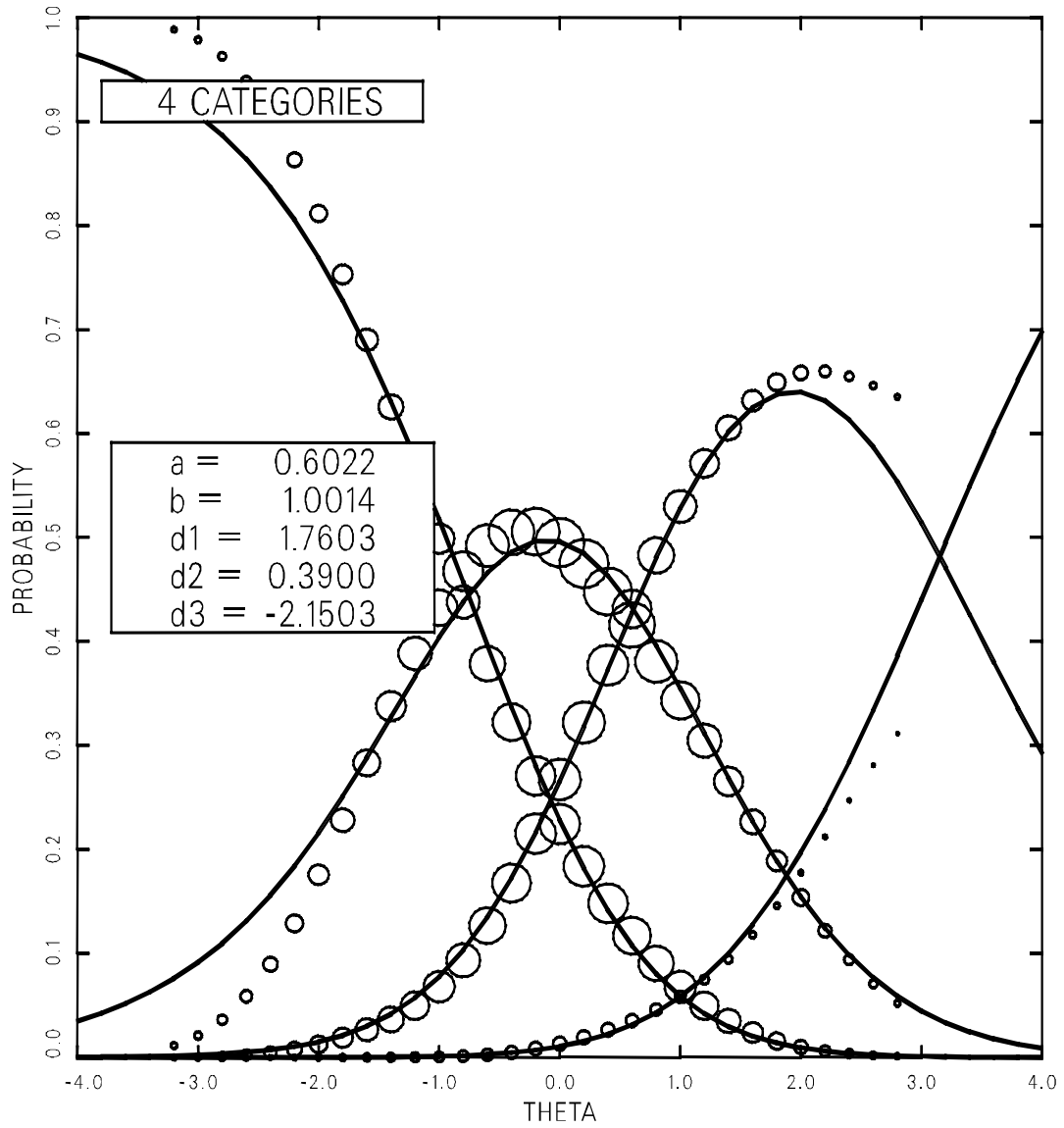
* Diamonds represent 1998 grade 8 reading assessment data; circles represent 1994 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

Figure 16-7a
Short-Term Trend Polytomous Item (R016210)
*Fitting Separate Item Response Functions for Each Assessment Year**



** Diamonds represent 1998 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

Figure 16-7b
Short-Term Trend Polytomous Item (R016210)
*Fitting Separate Item Response Functions for Each Assessment Year**



* Circles represent 1994 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

Table 16-4
Items Deleted from the Final Scaling

Scale	NAEP ID	Block	Grade Affected	Reason for Decision
Reading to Gain Information	R016603	R14	12	Poor fit in 1994 and 1998

16.3.2.2 Recoded Polytomous Items

Polytomous items received special treatment (i.e., recoding) for one of two reasons. First, some of the short-term trend items were recoded in the original 1994 scaling. These items were recoded again for the 1998 assessment. Second, two of the new (unique to 1998) polytomous items received this treatment in the scaling. Figure 16-4 shows one such item, R017110, from the Reading for Literary Experience scale at grade 12.

There is a lack of fit for both the unsatisfactory and partial categories for low scale score ($\theta < -1.0$) values. There is also a marked misfit for categories 1 and 2 in high scale score ($\theta > 1.0$) values. Categories 1 and 2 of this item were collapsed:

- 0 = Unsatisfactory
- 1 = Partial
- 2 = Complete

Figure 16-5 shows the recoded version of R017110 from the final scaling. The fit is substantially improved.

Table 16-5 lists polytomous items that were recoded for scaling in 1998.

Table 16-5
Recoding of Polytomous Items for Scaling

Scale	NAEP ID	Block	Grade(s) Affected	Reason for Decision	Disposition
Reading for Literary Experience	R012111	R4	4	Recoded in 1992 and 1994	Combine categories 0 + 1
	R013506	R4	12	Recoded in 1992 and 1994	Combine categories 0 + 1
	R017110	R3	8, 12	Poor fit in 1998	Combine categories 1 + 2 (dichotomize)
Reading to Gain Information	R015707	R8	4	Recoded in 1994	Combine categories 2 + 3
	R013706	R7	12	Recoded in 1992 and 1994	Combine categories 0 + 1, 2 + 3 (dichotomize)
Reading to Perform a Task	R013004	R11	8	Recoded in 1992 and 1994	Combine categories 0 + 1
	R013403	R10	8, 12	Recoded in 1992 and 1994	Combine categories 0 + 1
	R013406	R10	8, 12	Recoded in 1992 and 1994	Combine categories 0 + 1, 2 + 3 (dichotomize)
	R013915	R11	12	Poor fit in 1998	Combine categories 0 + 1
	R016104	R9	8, 12	Recoded in 1994	Combine categories 1 + 2 (dichotomize)

16.3.2.3 Item Category Response Functions (ICRFs) Common Across Assessment Years

The adequacy of the assumption of a common item (category) response function across assessment years was also evaluated. For dichotomous items, this was evaluated by comparing the nonmodel-based expected proportions for each assessment year to the single, model-based item response function fit by BILOG/PARSCALE. For polytomously scored items, similar plots were produced for each item category response function (ICRF, see Chapter 12). Plots showing each assessment year's data separately and the common item (category) response function were then examined. Items that showed clear evidence of functioning differently across assessments were treated as separate items for each assessment year. As was the case with deleting items, in making decisions about scaling items separately by assessment year, a balance was sought between being too stringent, hence, splitting too many items and possibly damaging the common item link between the assessment years, and being too lenient, hence, including items with model fit poor enough to endanger the model-based trend inferences.

For each short-term trend constructed-response item, a sample of approximately 600–1,000 of the 1994 responses was rescored in 1998. Most items showed an acceptably high level of exact agreement. However, several items showed a clear trend in the disagreements. Special attention was paid to these items in the process of scaling.

Figure 16-6 gives an example plot for an item that was split early in the process, R016210 at grade 8. The circles represent data from the 1994 assessment, and the diamonds represent the data from the 1998 assessment. There is a marked separation between the two sets of symbols that indicate that the item functioned substantially differently across assessment years.

Figures 16-7a and 16-7b show the result of splitting this item. Figure 16-7a gives the ICRF fit using only the 1998 data, and Figure 16-7b gives the ICRF fit to the 1994 data. Within each assessment year, there is good or acceptable agreement between the curve and the plotted points.

At each grade, several items were calibrated separately for each assessment year, because these items functioned differently across assessment years according to item plots. In addition, these items are constructed-response items that either have relatively low rater agreement across assessment years (as revealed in rescoring) or have relatively low rater reliabilities in the 1998 scoring. Tables 16-6 through 16-8 list the short-term trend items that were calibrated separately across assessment years. A list of the items scaled for each of the grades, along with their final item parameter estimates, appears in Appendix E.

Table 16-6
Grade 4 Items Scaled Separately by Assessment Years

Scale	Block	NAEP ID	Type
Reading for Literary Experience	R9	R015802	Short constructed-response
		R015803	Regular constructed-response
		R015807	Regular constructed-response
Reading to Gain Information	R8	R015702	Regular constructed-response

Table 16-7
Grade 8 Items Scaled Separately by Assessment Years

Scale	Block	NAEP ID	Type
Reading for Literary Experience	R5	R012607	Extended constructed-response
		R012611	Short constructed-response
Reading to Gain Information	R6	R013212	Extended constructed-response
	R7	R012711	Short constructed-response
	R13	R016210	Extended constructed-response
Reading to Perform a Task	R11	R013004	Extended constructed-response

Table 16-8
Grade 12 Items Scaled Separately by Assessment Years

Scale	Block	NAEP ID	Type	
Reading for Literary Experience	R5	R016301	Regular constructed-response	
		R016302	Regular constructed-response	
		R016305	Regular constructed-response	
Reading to Gain Information	R6	R013207	Short constructed-response	
		R013211	Short constructed-response	
	R7	R013704	Short constructed-response	
		R8	R016401	Regular constructed-response
			R016402	Regular constructed-response
	R13	R016405	Regular constructed-response	
		R015514	Extended constructed-response	
R14	R016602	Regular constructed-response		
Reading to Perform a Task	R11	R013913	Short constructed-response	

16.4 GENERATION OF PLAUSIBLE VALUES

Multivariate plausible values were generated for each grade group separately using the CGROUP program. Final student weights were used in this analysis. Reporting plans required analyses that examined the relationships between proficiencies and a large number of background variables. The background variables included student demographic characteristics (e.g., race/ethnicity of the student, highest level of education attained by parents), students' perceptions about reading, student behavior both in and out of school (e.g., amount of television watched daily, amount of homework done each day), and a variety of other aspects of the educational, social, and financial environment of the schools they attended. For grade 4 and grade 8, information was also collected from students' teachers concerning teachers' background, education, and instructional practices in the classroom (see Section 3.4.9).

To avoid bias in reporting results and to minimize biases in secondary analyses, it was desirable to incorporate a large number of independent variables in the conditioning model. When expressed in terms of contrast-coded main effects and interactions, the number of variables to be included totaled

1,081 for grade 4, 1,059 for age grade 8, and 568 for grade 12. The much larger numbers for grade 4 and grade 8 reflect the number of contrasts from the teacher questionnaires.

Some of these contrasts involved relatively small numbers of individuals and some were highly correlated with other contrasts or sets of contrasts. Given the large number of contrasts, an effort was made to reduce the dimensionality of the predictor variables. Consistent with what was done for the 1994 reading assessment, the original background variable contrasts were standardized and transformed into a set of linearly independent variables by extracting separate sets of principal components at each grade level. The principal components, rather than the original variables, were used as the independent variables in the conditioning model. The number of principal components was the number required to account for at least 90 percent of the variance in the original contrast variables. Research based on data from the 1990 trial state assessment in mathematics suggests that results obtained using such a subset of components will differ only slightly from those obtained using the full set (Mazzeo, Johnson, Bowker, & Fong, 1992). Table 16-9 contains a list of the number of principal components included in conditioning, as well as the proportion of variance accounted for by the conditioning model for each grade.

Table 16-9
*Proportion of Scale Score Variance Accounted for by the Conditioning Model
for the National Main Reading Assessment*

Grade	Number of Conditioning Contrasts*	Number of Principal Components*	Proportion of Scale Score Variance		
			Reading for Literary Experience	Reading to Gain Information	Reading to Perform a Task
4	1,081	381	.600	.610	NA
8	1,059	380	.599	.608	.662
12	568	235	.600	.565	.589

* Excluding the constant term

For each grade, Table 16-10 provides an estimated residual variance for each purpose-for-reading scale and the residual correlation matrix between the reading scales. The values, taken directly from the output of the CGROUP program, are estimates of relationships between the subscales conditional on the set of principal components included in the conditioning model. The marginal correlations between the purpose-for-reading scales are presented in Table 16-11.

Table 16-10
Conditional Correlations and Variances from Conditioning (CGROUP)

Grade	Scale	Reading for Literary Experience	Reading to Gain Information	Reading to Perform a Task
4	Reading for Literary Experience	1.000	—	NA
	Reading to Gain Information	0.853	1.000	NA
	Residual Variance	0.327	0.337	NA
8	Reading for Literary Experience	1.000	—	—
	Reading to Gain Information	0.863	1.000	—
	Reading to Perform a Task	0.827	0.868	1.000
	Residual Variance	0.353	0.357	0.341
12	Reading for Literary Experience	1.000	—	—
	Reading to Gain Information	0.807	1.000	—
	Reading to Perform a Task	0.688	0.758	1.000
	Residual Variance	0.404	0.428	0.393

Table 16-11
*Marginal Correlations of Reading Scales**

Grade	Scale	Reading for Literary Experience	Reading to Gain Information	Reading to Perform a Task
4	Reading for Literary Experience	1.000	—	NA
	Reading to Gain Information	0.851	1.000	NA
8	Reading for Literary Experience	1.000	—	—
	Reading to Gain Information	0.858	1.000	—
	Reading to Perform a Task	0.837	0.866	1.000
12	Reading for Literary Experience	1.000	—	—
	Reading to Gain Information	0.861	1.000	—
	Reading to Perform a Task	0.797	0.827	1.000

* Tabled values were obtained by computing a separate Pearson correlation coefficient for each plausible value, computing Fisher's z-transformation for each value, computing the average of the transformed values, and computing the inverse transformation of the average.

16.5 THE FINAL READING SCALES

16.5.1 Purpose-for-Reading Scales

The linear indeterminacy of the reading scale was resolved by linking the 1998 reading short-term trend scales to previous scales. For each grade, the item parameters from the joint calibration based on data from 1994 and 1998 were used with the 1994 data to find plausible values for the 1994 data. The mean and standard deviation of all of the plausible values were calculated and matched to the mean and standard deviation of all of the plausible values based on the original analysis of the 1994 data, as given

in earlier reports. This linking was performed separately for each of the purpose-for-reading scales using the transformation:

$$\theta_{scale\ score} = A \cdot \theta_{calibrated} + B$$

where $\theta_{scale\ score}$ denotes values on the final transformed scale and $\theta_{calibrated}$ denotes values on the original calibration scale from BILOG/PARSCALE. The constants for the linear transformation for each scale are given in Table 16-12.

Table 16-12
Coefficients of Linear Transformations of the Purpose-for-Reading Scales from the Calibrating Scale Units to the Units of the Reporting Scale

Grade	Scale	A	B
4	Reading for Literary Experience	43.17	217.25
	Reading to Gain Information	42.23	213.71
8	Reading for Literary Experience	36.27	260.82
	Reading to Gain Information	38.05	261.17
	Reading to Perform a Task	41.37	262.68
12	Reading for Literary Experience	48.04	285.44
	Reading to Gain Information	33.81	291.87
	Reading to Perform a Task	39.65	286.17

16.5.2 The Composite Reading Scale

For the national assessment, a composite scale was created as an overall measure of reading proficiency. The composite was a weighted average of plausible values on the purpose-for-reading scales (Reading for Literary Experience, Reading to Gain Information, and, at grade 8 and grade 12, Reading to Perform a Task). The weights for the scales were proportional to the importance assigned to each reading purpose contained in the assessment specifications given in the *Reading Framework*. The percentages of assessed time are given in Table 16-13. Weights for each reading purpose are similar to the actual proportion of assessment time devoted to that purpose. In developing the composite scale, the weights were applied to the plausible values for each reading purpose as expressed in terms of the final scale (i.e., after transformation from the provisional θ scales). Overall summary statistics for the composite scale are given in Tables 16-14.

Table 16-13
Weighting of the Purpose-for-Reading Scales on the Reading Composite Scale

Grade	Reading for Literary Experience	Reading to Gain Information	Reading to Perform a Task
4	55%	45%	Not assessed
8	40%	40%	20%
12	35%	45%	20%

Table 16-14
*Means and Standard Deviations
on the Reading Composite Scale**

Grade	Year	Mean	S. D.
4	1998	217.32	37.61
	1994	214.26	40.58
	1992	216.74	35.57
8	1998	263.63	34.65
	1994	259.64	36.75
	1992	260.04	35.89
12	1998	290.79	37.63
	1994	287.35	36.66
	1992	292.15	32.81

* Tabled values were computed separately for each plausible value. The mean is the mean of the individual means. The standard deviation is computed as the square root of the average of the individual variances.

16.6 PARTITIONING OF THE ESTIMATION ERROR VARIANCE

For each grade, the variance of the final, transformed scale mean was partitioned into two parts. This analysis yielded estimates of the proportion of error variance due to sampling students and the proportion due to the latent nature of θ . These estimates are given in Table 16-15 for each purpose-for-reading scale and the composite scale (for stability, the estimates of the between-imputation variance B in Equation 12.12 are based on 100 plausible values). Additional results, including those by gender and race/ethnicity, are presented in Appendix H.

Table 16-15
Estimation Error Variance and Related Coefficients for the National Main Reading Assessment

Grade	Scale	Total Estimation Error Variance	Proportion of Variance Due to ...	
			Student Sampling	Latency of θ
4	Reading for Literary Experience	0.72	0.84	0.16
	Reading to Gain Information	0.88	0.85	0.15
	Composite	0.64	0.89	0.11
8	Reading for Literary Experience	0.75	0.85	0.15
	Reading to Gain Information	0.77	0.91	0.09
	Reading to Perform a Task	0.89	0.87	0.13
	Composite	0.62	0.93	0.07
12	Reading for Literary Experience	1.07	0.79	0.21
	Reading to Gain Information	0.44	0.80	0.20
	Reading to Perform a Task	0.62	0.75	0.25
	Composite	0.51	0.88	0.12

16.7 READING TEACHER QUESTIONNAIRES

Teachers of fourth- and eighth-grade students were surveyed about their educational background and teaching practices. Each student's records were matched first with his or her reading teacher, and then with the specific classroom period. Variables derived from the questionnaire were used in the conditioning models. An additional conditioning variable was included that indicated whether the student had been matched with a teacher record. This contrast controlled estimates of subgroup means for differences that exist between matched and nonmatched students. Of the 7,672 fourth-grade students in the sample, 6,741 (88%, unweighted) were matched with teachers who answered both parts of the teacher questionnaire, and 334 (4%, unweighted) of the students had teachers who answered only the teacher background section of the questionnaire. For the eighth-grade sample, 8,935 of the 11,051 students (81%, unweighted) were matched to both sections of the teacher questionnaire. An additional 935 students (8%, unweighted) were matched with the first part of the teacher questionnaire, but could not be matched to the appropriate classroom period. Thus, 92 percent of the fourth-graders and 89 percent of the eighth-graders were matched with at least the background information about their reading teacher.

Chapter 17

DATA ANALYSIS OF THE STATE READING ASSESSMENT¹

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17.1 INTRODUCTION

This chapter describes the analyses used in developing the reading scales for the 1998 state assessment of reading that was carried out at grades 4 and 8. The procedures used were similar to those employed in the analysis of the 1992 and 1994 state assessments in reading (Allen, Mazzeo, Ip, Swinton, Isham, & Worthington, 1995; Allen, Mazzeo, Isham, Fong, & Bowker, 1994) and are based on the philosophical and theoretical rationale given in the previous chapter. For 1998, the NAEP reading assessment framework incorporated a balance of knowledge and skills based on current reform reports, exemplary curriculum guides, and research on the teaching and learning of reading. The 1998 state assessment included the assessment of both public- and nonpublic-school students for most jurisdictions. The NAEP report card for state assessments only presents average scale scores and achievement-level results for public-school students selected using the 1996 inclusion rules and provided no accommodations. The inclusion rules used are discussed in more detail in Section 1.1.

There were five major steps in the analysis of the state assessment reading data, each of which is described in a separate section:

- Conventional item and test analyses (Section 17.2)
- Item response theory (IRT) scaling (Section 17.3)
- Estimation of state and subgroup scale score distributions based on the “plausible values” methodology (Section 17.4)
- Linking of the 1998 state assessment scales to the corresponding scales from the 1998 national assessment (Section 17.5)
- Creation of the state assessment reading composite scale (Section 17.5)

For the context of the assessment instruments and administration procedures of the reading assessments, see Chapters 5 and 14.

17.2 STATE ITEM AND TEST ANALYSES

For grades 4 and 8, Tables 17-1 through 17-4 contain summary statistics for each block of items for public- and nonpublic-school sessions, respectively. (The nonpublic-school population that was sampled included students from Catholic schools, private religious schools, and private nonreligious schools [all referred to by the term “nonpublic schools”].) Block-level statistics are provided both overall and by serial position of the block within booklet. To produce the tables for grade 4, data from all 44

¹ Jiahe Qian was the primary person responsible for the planning, specification, and coordination of the state reading analyses. Computing activities for all reading scaling and data analyses were directed by Steven P. Isham and completed by Lois H. Worthington. Others contributing to the analysis of reading data were David S. Freund, Bruce A. Kaplan, Jo-Lin Liang, and Katharine E. Pashley.

jurisdictions were aggregated and statistics were calculated using rescaled versions of the final (reporting sample) sampling weights provided by Westat. The same processes employed the data from all 41 jurisdictions in the grade 8 assessment. The senate weights were used in item analysis and scaling procedure (see Section 15.5). Use of the senate weights does nothing to alter the value of statistics calculated separately within each jurisdiction. However, for statistics obtained from samples that combine students from different jurisdictions, use of the senate weights results in a roughly equal contribution of each jurisdiction's data to the final value of the estimate. As discussed in Mazzeo (1991), equal contribution of each jurisdiction's data to the results of the IRT scaling was viewed as a desirable outcome and the same rescaled weights were only adjusted slightly in carrying out the scaling. Hence, the item analysis statistics for each grade shown in Tables 17-1 through 17-4 are approximately consistent with the weighting used in scaling.

Table 17-1
*Descriptive Statistics for Each Block of Items by Position Within Test Booklet and Overall**
Public Schools, Grade 4

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10
Unweighted Sample Size	First	12,349	12,296	12,136	12,233	12,272	12,440	12,307	12,335
	Second	12,414	12,390	12,158	12,265	12,228	12,227	12,224	12,283
	Both	24,763	24,686	24,294	24,498	24,500	24,667	24,531	24,618
Average Item Score	First	.49	.65	.46	.59	.43	.53	.62	.67
	Second	.47	.63	.44	.56	.42	.50	.60	.64
	Both	.48	.64	.45	.58	.42	.51	.61	.65
Weighted Alpha Reliability	First	.68	.79	.73	.71	.73	.71	.75	.78
	Second	.70	.80	.73	.70	.74	.73	.75	.77
	Both	.69	.79	.72	.70	.73	.72	.75	.77
Average R-Polyserial	First	.63	.67	.61	.60	.67	.61	.60	.65
	Second	.66	.70	.63	.62	.70	.64	.65	.67
	Both	.65	.68	.62	.61	.68	.63	.62	.66
Proportion of Students Attempting Last Item	First	.70	.60	.71	.67	.59	.69	.63	.79
	Second	.82	.74	.84	.84	.74	.82	.78	.88
	Both	.76	.67	.78	.75	.66	.75	.71	.85

* The number and types of items contained in each block are shown in Table 15-4.

Tables 17-1 through 17-4 show the number of students assigned each block of items, the average item score, the weighted alpha reliability, the average polyserial correlation, and the proportion of students attempting the last item in the block for each grade. The average item score for the block is the average, over items, of the score means for each of the individual items in the block. For binary-scored multiple-choice and constructed-response items, these score means correspond to the proportion of students who correctly answered each item. For the extended constructed-response items, the score means were calculated as item score mean divided by the maximum number of points possible.

In NAEP analyses (both conventional and IRT-based), a distinction is made between missing responses at the end of each block (i.e., missing responses subsequent to the last item the student answered) and missing responses prior to the last observed response. Missing responses before the last observed response are considered intentional omissions. Intentional omissions were considered “omitted” and were treated as incorrect responses. In calculating the average score for each item, only students classified as having been presented the item were included in the denominator of the statistic. Missing responses at the end of the block are considered “not-reached,” and treated as if they had not been

presented to the student. The proportion of students attempting the last item of a block (or, equivalently, one minus the proportion of students not reaching the last item) is often used as an index of the degree of speededness associated with the administration of that block of items. Mislevy and Wu (1988) discussed these conversions.

Table 17-2
*Descriptive Statistics for Each Block of Items by Position Within Test Booklet and Overall**
Nonpublic Schools, Grade 4

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10
Unweighted Sample Size	First	942	945	950	958	973	974	946	969
	Second	965	954	941	951	965	968	944	957
	Both	1,907	1,899	1,891	1,909	1,938	1,942	1,890	1,926
Average Item Score	First	.57	.73	.53	.67	.52	.59	.68	.74
	Second	.56	.71	.54	.64	.52	.58	.66	.72
	Both	.56	.72	.53	.66	.52	.58	.67	.73
Weighted Alpha Reliability	First	.57	.69	.72	.65	.71	.64	.70	.69
	Second	.62	.69	.69	.64	.72	.67	.67	.72
	Both	.59	.69	.70	.64	.71	.65	.68	.70
Average R-Polyserial	First	.57	.63	.60	.56	.65	.57	.54	.60
	Second	.60	.64	.61	.59	.67	.61	.61	.66
	Both	.59	.64	.60	.57	.66	.59	.58	.63
Proportion of Students Attempting Last Item	First	.81	.70	.80	.78	.66	.77	.73	.89
	Second	.88	.83	.92	.90	.83	.88	.86	.92
	Both	.84	.77	.86	.84	.74	.82	.80	.90

* The number and types of items contained in each block are shown in Table 15-4.

The average polyserial correlation is the average, over items, of the item-level polyserial correlations (r -biserial for dichotomous items) between the item and the number-correct block score. For each item-level r -polyserial, total block number-correct score (including the item in question, and with students receiving zero points for all not-reached items) was used as the criterion variable for the correlation. The number-correct score was the sum of the item scores where correct dichotomous items are assigned 1 and correct polytomous (or multiple-category) items are assigned the score category for the response. Data from students classified as not reaching the item were omitted from the calculation of the statistic. As is evident from Tables 17-1 through 17-4, the difficulty and the average item-to-total correlations of the blocks varied somewhat for each grade. Such variability was expected, since these blocks were not created to be parallel in either difficulty or content. In general, the proportion of nonpublic-school students reaching the last item in blocks was higher. For public-school students, only 67 percent of the fourth-graders and 69 percent of the eighth-graders receiving block R4 reached the last item in the block. For nonpublic-school students, 77 percent of fourth-graders and 82 percent of eighth-graders receiving block R4 reached the last item in the block.

Table 17-3
*Descriptive Statistics for Each Block of Items by Position Within Test Booklet and Overall**
Public Schools, Grade 8

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10	R11
Unweighted Sample Size	First	7,781	7,882	7,836	7,741	7,792	7,683	7,850	7,760	7,917
	Second	7,864	7,586	7,788	7,942	7,796	7,860	7,638	7,833	7,726
	Both	15,645	15,468	15,624	15,683	15,588	15,543	15,488	15,593	15,643
Average Item Score	First	.42	.44	.68	.57	.70	.49	.61	.60	.68
	Second	.40	.42	.66	.55	.67	.47	.60	.61	.67
	Both	.41	.43	.67	.56	.69	.48	.60	.60	.68
Weighted Alpha Reliability	First	.77	.67	.74	.68	.77	.66	.69	.70	.79
	Second	.77	.70	.77	.71	.79	.69	.70	.72	.79
	Both	.77	.69	.75	.70	.78	.68	.70	.71	.79
Average R-Polyserial	First	.69	.61	.69	.61	.70	.59	.68	.59	.70
	Second	.70	.64	.72	.64	.71	.61	.68	.61	.71
	Both	.70	.63	.71	.63	.70	.60	.68	.60	.70
Proportion of Students Attempting Last Item	First	.79	.67	.95	.86	.83	.85	.95	.77	.81
	Second	.85	.72	.95	.86	.88	.90	.95	.84	.90
	Both	.82	.69	.95	.86	.85	.88	.95	.81	.86

* The number and types of items contained in each block are shown in Table 15-6.
 Block R13 did not appear with any other cognitive block, so no information on positions is available.

These tables also indicate that there was little variability in average item scores or average polyserial correlations for each block by serial position within the assessment booklet. The differences in item statistics were small for items appearing in blocks in the first position and in the second position. However, differences were consistent in their direction. Average item scores were almost always highest when each block was presented in the first position. Average polyserial correlations were usually higher when each block was presented in the second position. An aspect of block-level performance that did differ noticeably by block position was the proportion of students attempting the last item in the block. As shown in Tables 17-1 through 17-4, the percentage of the students attempting the last item increased in the second block position. Students may have learned to pace themselves through the later block after they had experienced the format of the first block they received. This was similar to what occurred in the previous state reading assessments. For the 1992 state assessment, a study was completed to examine the effect of the block position differences on scaling. Due to the partial BIB design of the booklets, those effects were minimal.

As mentioned earlier, in an attempt to maintain rigorous standardized administration procedures across the jurisdictions, a randomly selected 50 percent of all sessions within each jurisdiction that had never participated in a state assessment were observed by a Westat-trained quality control monitor. In the 1998 state reading assessment, Kansas was the only new participant, and 50 percent of those sessions were monitored. A randomly selected 25 percent of the sessions within other jurisdictions were monitored. Observations from the monitored sessions provided information about the quality of administration procedures and the frequency of departures from standardized procedures in the monitored sessions (see Chapter 5 for a discussion of the substance of these observations).

Table 17-4
*Descriptive Statistics for Each Block of Items**
by Position Within Test Booklet and Overall
Nonpublic Schools, Grade 8

Statistic	Position	R3	R4	R5	R6	R7	R8	R9	R10	R11
Unweighted Sample Size	First	482	491	466	461	482	458	479	483	484
	Second	473	471	486	493	483	468	463	479	459
	Both	955	962	952	954	965	926	942	962	943
Average Item Score	First	.51	.50	.75	.65	.80	.57	.72	.69	.80
	Second	.50	.50	.76	.64	.79	.55	.71	.70	.79
	Both	.51	.50	.75	.65	.79	.56	.71	.70	.79
Weighted Alpha Reliability	First	.71	.60	.75	.58	.65	.55	.62	.63	.71
	Second	.75	.60	.68	.55	.71	.59	.62	.60	.63
	Both	.73	.60	.72	.56	.68	.58	.62	.62	.67
Average R-Polyserial	First	.64	.59	.74	.56	.68	.55	.64	.55	.66
	Second	.68	.58	.70	.55	.73	.57	.65	.54	.66
	Both	.66	.58	.72	.55	.70	.56	.65	.54	.66
Proportion of Students Attempting Last Item	First	.83	.78	.96	.94	.92	.91	.97	.80	.90
	Second	.89	.85	.98	.94	.96	.94	.96	.88	.92
	Both	.86	.82	.97	.94	.94	.92	.96	.84	.91

* The number and types of items contained in each block are shown in Table15-6.

Block R13 did not appear with any other cognitive block, so no information on positions is available.

Tables 17-5 through 17-8 provide the block-level descriptive statistics for the monitored and unmonitored sessions. When results were aggregated over all participating jurisdictions, there was little difference between the performance of students who attended monitored or unmonitored sessions. When data were classified by school type, there was also little difference between the performance of students who attended monitored or unmonitored sessions. For grade 4, the average item score over all 8 blocks and over all 44 participating jurisdictions was 0.54 for both monitored and unmonitored public-school sessions. The average item score was 0.62 for monitored nonpublic-school sessions and 0.62 for unmonitored nonpublic-school sessions. For grade 8, the average item score over all 10 blocks and over all 41 participating jurisdictions was 0.577 and 0.582 for monitored and unmonitored public-school sessions, respectively. The average item score was 0.67 for both monitored and unmonitored nonpublic-school sessions.

Table 17-5*Block-Level* Descriptive Statistics for Monitored and Unmonitored Public-School Sessions, Grade 4*

Statistic	R3	R4	R5	R6	R7	R8	R9	R10
Unweighted Sample Size								
Unmonitored	18,540	18,473	18,159	18,322	18,359	18,500	18,325	18,386
Monitored	6,223	6,213	6,135	6,176	6,141	6,167	6,206	6,232
Average Item Score								
Unmonitored	.48	.64	.45	.58	.42	.51	.61	.66
Monitored	.48	.64	.45	.57	.42	.51	.61	.65
Weighted Alpha Reliability								
Unmonitored	.69	.79	.73	.70	.73	.72	.75	.77
Monitored	.68	.80	.74	.70	.73	.73	.75	.78
Average R-Polyserial								
Unmonitored	.65	.68	.62	.61	.69	.63	.62	.66
Monitored	.64	.69	.63	.62	.68	.63	.62	.66
Proportion of Students Attempting Last Item								
Unmonitored	.77	.67	.78	.76	.67	.76	.71	.84
Monitored	.74	.66	.77	.75	.65	.74	.69	.83

* The number and types of items contained in each block are shown in Table 15-4.

Table 17-6*Block-Level* Descriptive Statistics for Monitored and Unmonitored Nonpublic-School Sessions, Grade 4*

Statistic	R3	R4	R5	R6	R7	R8	R9	R10
Unweighted Sample Size								
Unmonitored	1,372	1,361	1,345	1,365	1,382	1,381	1,342	1,370
Monitored	535	538	546	544	556	561	548	556
Average Item Score								
Unmonitored	.57	.72	.54	.66	.52	.58	.67	.73
Monitored	.56	.72	.51	.65	.52	.59	.68	.74
Weighted Alpha Reliability								
Unmonitored	.59	.68	.70	.64	.70	.65	.67	.70
Monitored	.60	.71	.71	.63	.75	.64	.70	.70
Average R-Polyserial								
Unmonitored	.58	.64	.60	.57	.64	.59	.58	.64
Monitored	.60	.63	.62	.57	.70	.59	.58	.63
Proportion of Students Attempting Last Item								
Unmonitored	.82	.78	.87	.84	.75	.82	.81	.91
Monitored	.84	.74	.83	.82	.73	.84	.76	.90

* The number and types of items contained in each block are shown in Table 15-4.

Table 17-7
Block-Level Descriptive Statistics for Monitored and Unmonitored
 Public-School Sessions, Grade 8*

Statistic	R3	R4	R5	R6	R7	R8	R9	R10	R11	R13
Unweighted Sample Size										
Unmonitored	11,803	11,618	11,732	11,798	11,681	11,691	11,609	11,695	11,720	11,823
Monitored	3,842	3,850	3,892	3,885	3,907	3,852	3,879	3,898	3,923	3,914
Average Item Score										
Unmonitored	.41	.43	.67	.55	.69	.48	.60	.60	.67	.67
Monitored	.42	.43	.67	.56	.69	.49	.61	.61	.69	.67
Weighted Alpha Reliability										
Unmonitored	.77	.69	.76	.70	.78	.68	.70	.71	.79	.74
Monitored	.77	.67	.75	.70	.78	.67	.69	.71	.78	.73
Average R-Polyserial										
Unmonitored	.70	.63	.71	.63	.71	.60	.68	.60	.70	.62
Monitored	.71	.62	.71	.63	.70	.60	.68	.60	.69	.60
Proportion of Students Attempting Last Item										
Unmonitored	.82	.69	.95	.86	.85	.87	.94	.81	.86	.95
Monitored	.83	.70	.95	.86	.86	.88	.96	.81	.85	.95

* The number and types of items contained in each block are shown in Table 15-6.

Table 17-8
Block-Level Descriptive Statistics for Monitored and Unmonitored Nonpublic-School Sessions
 Grade 8*

Statistic	R3	R4	R5	R6	R7	R8	R9	R10	R11	R13
Unweighted Sample Size										
Unmonitored	645	651	649	655	652	631	637	646	641	673
Monitored	310	311	303	299	313	295	305	316	302	299
Average Item Score										
Unmonitored	.51	.49	.75	.64	.79	.56	.72	.70	.80	.73
Monitored	.50	.52	.76	.66	.80	.58	.69	.70	.79	.74
Weighted Alpha Reliability										
Unmonitored	.74	.60	.72	.57	.70	.58	.64	.62	.65	.57
Monitored	.70	.59	.72	.54	.63	.55	.59	.62	.72	.53
Average R-Polyserial										
Unmonitored	.67	.59	.71	.56	.73	.56	.65	.55	.65	.53
Monitored	.63	.56	.76	.54	.64	.55	.65	.54	.67	.46
Proportion of Students Attempting Last Item										
Unmonitored	.87	.81	.97	.94	.95	.92	.96	.82	.92	.97
Monitored	.83	.83	.97	.94	.92	.93	.98	.87	.89	.94

* The number and types of items contained in each block are shown in Table 15-6.

Table 17-9 for grade 4 and Table 17-10 for grade 8 summarize the differences between monitored and unmonitored average item scores for the jurisdictions. These are mean differences within a jurisdiction averaged over all items in all blocks. The results in the tables are from combined samples of public- and nonpublic-school data. The mean difference and median difference were close to zero. For grade 4, 26 jurisdictions had negative differences (i.e., students from unmonitored sessions scored higher than students from monitored sessions). None was larger in absolute magnitude than 0.029. For grade 8, 17 jurisdictions had negative differences. The largest in absolute magnitude is 0.052. The results indicate that across jurisdictions, the differences between monitored and unmonitored sessions are relatively small for both grades. While these tables list differences, no significance tests were done. This is true for all the descriptive statistics in Tables 17-5 to 17-12.

As has been the case since the 1994 trial state assessment in reading, the 1998 state assessment in reading included students sampled from nonpublic schools. Tables 17-11 and 17-12 show the difference between public and nonpublic schools with respect to sample size, average item scores, alpha reliability, average *r*-polyserial correlation, and proportion of students attempting the last item in a block. As with the monitored/unmonitored comparisons, results were aggregated over all participating jurisdictions. For grade 4, 43 of the 44 jurisdictions that participated in the state assessment in reading had public-school samples and 29 of the 44 jurisdictions had nonpublic-school samples that met reporting requirements. For grade 8, 40 of the 41 jurisdictions had public-school samples and 23 of the 41 jurisdictions had nonpublic-school samples that met reporting requirements.

Consistent differences are evident between the public- and nonpublic-school groups. Table 17-11, for grade 4, indicates that the difference in average item score between public- and nonpublic-school students (i.e., public block mean minus nonpublic block mean) ranged from -.095 to -.061, with an average of -.079, indicating that public-school students were generally lower in average item score.

Table 17-9
Effect of Monitoring Sessions by Jurisdiction:
Average Jurisdiction Item Scores for Monitored and Unmonitored Sessions, Grade 4

	Monitored	Unmonitored	Monitored – Unmonitored
Alabama	0.506	0.489	0.017
Arizona	0.467	0.494	-0.027
Arkansas	0.512	0.491	0.022
California	0.459	0.473	-0.014
Colorado	0.548	0.553	-0.005
Connecticut	0.609	0.592	0.017
Delaware	0.490	0.500	-0.009
Florida	0.517	0.493	0.024
Georgia	0.495	0.501	-0.006
Hawaii	0.483	0.473	0.010
Iowa	0.553	0.557	-0.004
Kansas	0.549	0.548	0.001
Kentucky	0.519	0.527	-0.008
Louisiana	0.490	0.488	0.002
Maine	0.571	0.561	0.010
Maryland	0.539	0.538	0.001
Massachusetts	0.584	0.569	0.015
Michigan	0.541	0.535	0.006
Minnesota	0.560	0.558	0.002
Mississippi	0.468	0.473	-0.005
Missouri	0.554	0.525	0.029
Montana	0.550	0.571	-0.021
Nebraska	0.561	0.608	-0.047
Nevada	0.493	0.489	0.004
New Hampshire	0.538	0.575	-0.036
New Mexico	0.475	0.488	-0.013
New York	0.523	0.533	-0.010
North Carolina	0.505	0.535	-0.030
Oklahoma	0.520	0.533	-0.013
Oregon	0.517	0.515	0.002
Rhode Island	0.546	0.545	0.001
South Carolina	0.499	0.502	-0.002
Tennessee	0.499	0.503	-0.004
Texas	0.538	0.525	0.013
Utah	0.515	0.518	-0.002
Virginia	0.525	0.532	-0.007
Washington	0.525	0.544	-0.019
West Virginia	0.511	0.530	-0.019
Wisconsin	0.551	0.566	-0.014
Wyoming	0.529	0.539	-0.010
District of Columbia	0.365	0.373	-0.008
DoDEA/DDESS	0.538	0.535	0.002
DoDEA/DoDDS	0.539	0.554	-0.016
Virgin Islands	0.348	0.399	-0.051
Mean			-0.005
Median			-0.005
Minimum			-0.051
1st Quartile			-0.013
3rd Quartile			0.003
Maximum			0.029

Table 17-10
Effect of Monitoring Sessions by Jurisdiction:
Average Jurisdiction Item Scores for Monitored and Unmonitored Sessions, Grade 8

	Monitored	Unmonitored	Monitored - Unmonitored
Alabama	0.499	0.514	-0.014
Arizona	0.545	0.541	0.004
Arkansas	0.533	0.516	0.017
California	0.527	0.514	0.012
Colorado	0.567	0.559	0.008
Connecticut	0.606	0.600	0.006
Delaware	0.559	0.507	0.052
Florida	0.540	0.513	0.027
Georgia	0.533	0.534	-0.002
Hawaii	0.510	0.480	0.031
Kansas	0.590	0.569	0.021
Kentucky	0.568	0.546	0.022
Louisiana	0.513	0.521	-0.008
Maine	0.601	0.607	-0.006
Maryland	0.555	0.569	-0.014
Massachusetts	0.594	0.583	0.010
Minnesota	0.596	0.576	0.020
Mississippi	0.509	0.487	0.022
Missouri	0.558	0.560	-0.002
Montana	0.584	0.594	-0.010
Nebraska	0.640	0.627	0.014
Nevada	0.532	0.527	0.005
New Mexico	0.535	0.532	0.004
New York	0.573	0.582	-0.009
North Carolina	0.567	0.559	0.008
Oklahoma	0.564	0.560	0.004
Oregon	0.559	0.572	-0.012
Rhode Island	0.588	0.560	0.028
South Carolina	0.508	0.510	-0.002
Tennessee	0.522	0.537	-0.014
Texas	0.533	0.547	-0.015
Utah	0.576	0.553	0.023
Virginia	0.588	0.564	0.024
Washington	0.565	0.566	-0.002
West Virginia	0.548	0.545	0.003
Wisconsin	0.580	0.566	0.014
Wyoming	0.517	0.559	-0.043
District of Columbia	0.414	0.436	-0.022
DoDEA/DDESS	0.607	0.562	0.045
DoDEA/DoDDS	0.567	0.583	-0.016
Virgin Islands	0.436	0.447	-0.011
Mean			0.005
Median			0.004
Minimum			-0.043
1st Quartile			-0.009
3rd Quartile			0.020
Maximum			0.052

The public/nonpublic difference in average item-to-total block correlation (the average r -polyserial) ranged from 0.017 to 0.059, with an average of 0.037, indicating that public-school students generally had a somewhat higher item-to-total correlation. As for the proportion of students attempting the last item, public minus nonpublic differences ranged from -.097 to -.06, with an average of -.080, indicating that somewhat fewer students in public schools attempted the last item.

Table 17-11
Block-Level Descriptive Statistics for Overall Public- and Nonpublic-School Sessions
Grade 4

Statistic	R3	R4	R5	R6	R7	R8	R9	R10
Unweighted Sample Size								
Public	24,763	24,686	24,294	24,498	24,500	24,667	24,531	24,618
Nonpublic	1,907	1,899	1,891	1,909	1,938	1,942	1,890	1,926
Weighted Average Item Score								
Public	.48	.64	.45	.58	.42	.51	.61	.65
Nonpublic	.56	.72	.53	.66	.52	.58	.67	.73
Weighted Alpha Reliability								
Public	.69	.79	.72	.70	.73	.72	.75	.77
Nonpublic	.59	.69	.70	.64	.71	.65	.68	.70
Weighted Average R-Polyserial								
Public	.65	.68	.62	.61	.68	.63	.62	.66
Nonpublic	.59	.64	.60	.57	.66	.59	.58	.63
Weighted Proportion of Students Attempting Last Item								
Public	.76	.67	.78	.75	.66	.75	.71	.85
Nonpublic	.84	.77	.86	.84	.74	.82	.80	.90

Table 17-12
Block-Level Descriptive Statistics for Overall Public- and Nonpublic-School Sessions
Grade 8

Statistic	R3	R4	R5	R6	R7	R8	R9	R10	R11	R13
Unweighted Sample Size										
Public	15,645	15,468	15,624	15,683	15,588	15,543	15,488	15,593	15,643	15,737
Nonpublic	955	962	952	954	965	926	942	962	943	972
Weighted Average Item Score										
Public	.41	.43	.67	.56	.69	.48	.60	.60	.68	.67
Nonpublic	.51	.50	.75	.65	.79	.56	.71	.70	.79	.74
Weighted Alpha Reliability										
Public	.77	.69	.75	.70	.78	.68	.70	.71	.79	.74
Nonpublic	.73	.60	.72	.56	.68	.58	.62	.62	.67	.56
Weighted Average R-Polyserial										
Public	.70	.63	.71	.63	.70	.60	.68	.60	.70	.61
Nonpublic	.51	.50	.75	.65	.79	.56	.71	.70	.79	.51
Weighted Proportion of Students Attempting Last Item										
Public	.82	.69	.95	.86	.85	.88	.95	.81	.86	.95
Nonpublic	.86	.82	.97	.94	.93	.92	.96	.84	.91	.96

17.3 STATE IRT SCALING

As described in Chapter 12, separate IRT-based scales were developed using the scaling models. For grade 4, two scales were produced by separately calibrating the sets of items classified in each of the two content areas. For grade 8, three scales were produced in each of the three content areas.

For the reasons discussed in Mazzeo (1991), for each scale, a single set of item parameters for each item was estimated and used for all jurisdictions. Item-parameter estimation was carried out using a 25 percent systematic random sample of the students participating in the 1998 state assessment and included equal numbers of students from each participating jurisdiction, half from monitored sessions and half from unmonitored sessions whenever possible. All students in the scaling sample were public-school students. The grade 4 sample consisted of 98,873 students, with 590 students being sampled from each of the 42 participating jurisdictions (excluding DoDEA/DDESS² and DoDEA/DoDDS³ schools). Of the 590 records sampled from each jurisdiction, 295 were drawn from the monitored sessions and 295 were drawn from the unmonitored sessions. The grade 8 sample consisted of 86,210 students, with 554 students being sampled from each of the 39 participating jurisdictions. Of the 554 records sampled from each jurisdiction, 277 were drawn from the monitored sessions and 277 were drawn from the unmonitored sessions. In grade 8, there were less than 277 monitored students in the District of Columbia and Virgin Islands; therefore, all the monitored students in these two jurisdictions were included. The rescaled weights for the 25 percent sample of students used in item calibration were adjusted slightly to ensure that (1) each jurisdiction's data contributed equally to the estimation process, and (2) data from monitored and unmonitored sessions contributed equally. All calibrations were carried out using the rescaled sampling weights described in Section 11.2 in an effort to ensure that each jurisdiction's data contributed equally to the determination of the item-parameter estimates.

To the extent that items may have functioned differently in monitored and unmonitored sessions, the single set of item parameters obtained defines a set of item characteristic curves "averaged over" the two types of sessions. Tables 17-5 through 17-8 (shown earlier) presented block-level item statistics that suggested little, if any, difference in item functioning by session type.

Only public-school data were used in the scaling models for the state assessments, since no DIF items were found in the public versus nonpublic comparisons for both fourth- and eighth-grade data. For details on DIF analysis, see Chapter 15, Section 15.4.

17.3.1 Item Parameter Estimation

For each content-area scale, item parameter estimates were obtained using the NAEP BILOG/PARSCALE program, which combines Mislevy and Bock's (1982) BILOG and Muraki and Bock's (1991) PARSCALE computer programs. The program uses marginal maximum likelihood estimation procedures to estimate the parameters of the one-, two-, and three-parameter logistic models, and the generalized partial-credit model described by Muraki (1992).

Multiple-choice items were dichotomously scored and were scaled using the three-parameter logistic model. Omitted responses to multiple-choice items were treated as fractionally correct, with the fraction being set to 1 over the number of response options. Short constructed-response items that were also in the 1992 assessment were dichotomously scored and scaled using the two-parameter logistic model. New short (regular) constructed-response items were scored on a three-point generalized partial-

² DoDEA/DDESS is the Department of Defense Education Activity Department of Defense Domestic Dependent Elementary and Secondary Schools.

³ DoDEA/DoDDS is the Department of Defense Education Activity Department of Defense Dependents Schools.

credit scale. These items appear in block 3 for grade 4, and in blocks 3 and 8 for grade 8. Omitted responses to short constructed-response items were treated as incorrect.

There were a total of eight extended constructed-response items. Each of these items was also scaled using the generalized partial-credit model. Four scoring levels were defined:

- 0 = Unsatisfactory response or omitted
- 1 = Partial response
- 2 = Essential response
- 3 = Extensive response

Note that omitted responses were treated as the lowest possible score level. As stated earlier, not-reached and off-task responses were treated as if the item were not administered to the student. Table 17-13 provides a listing of the blocks, positions within the block, content-area classifications, and NAEP identification numbers for all extended constructed-response items included in the 1998 assessment for grade 4 and grade 8 data.

Table 17-13
Extended Constructed-Response Items, 1998 State Assessment in Reading

Grade	Block	Position in Block	Content Area Classifications	NAEP ID
4	R3	6	Literary Experience	R017007
	R4	11	Literary Experience	R012111
	R5	7	Literary Experience	R012607
	R6	4	Gain Information	R012204
	R7	8	Gain Information	R012708
	R8	7	Gain Information	R015707
	R9	4	Literary Experience	R015804
	R10	12	Gain Information	R012512
8	R3	5	Literary Experience	R017105
	R4	6	Literary Experience	R015906
	R5	7	Literary Experience	R012607
	R6	1	Gain Information	R013201
	R6	12	Gain Information	R013212
	R7	8	Gain Information	R012708
	R8	5	Gain Information	R017205
	R13	4	Gain Information	R016204

Empirical Bayes modal estimates of all item parameters were obtained from the BILOG/PARSCALE program. Prior distributions were imposed on item parameters with the following starting values: thresholds, normal [0,2]; slopes, log-normal [0,.5]; and asymptotes, two-parameter beta with parameter values determined as functions of the number of response options for an item and a weight factor of 50. The locations (but not the dispersions) were updated at each program-estimation cycle in accordance with provisional estimates of the item parameters.

Item parameter estimation proceeded in two phases. First, the subject ability distribution was assumed fixed (normal [0,1]) and a stable solution was obtained. Starting values for the item parameters were provided by item analysis routines. The parameter estimates from this initial solution were then

used as starting values for a subsequent set of runs in which the subject ability distribution was freed and estimated concurrently with item parameter estimates. After each estimation cycle, the subject ability distribution was standardized to have a mean of zero and standard deviation of one. Correspondingly, parameter estimates for that cycle were also linearly standardized.

During and subsequent to item parameter estimation, evaluations of the fit of the IRT models were carried out for each of the items in the item pool. These evaluations were conducted to determine the final composition of the item pool making up the scales by identifying misfitting items that should not be included. Evaluations of model fit were based primarily on graphical analyses. For dichotomously scored multiple-choice and two-category response items, model fit was evaluated by examining plots of estimates of the expected conditional (on theta) probability of a correct response that do not assume a two-parameter or three-parameter logistic model versus the probability predicted by the estimated item-characteristic curve (see Mislevy & Sheehan, 1987, p. 302). For the extended constructed-response items, similar plots were produced for each item-category characteristic curve.

As with most procedures that involve evaluating plots of data versus model predictions, a certain degree of subjectivity is involved in determining the degree of fit necessary to justify use of the model. There are a number of reasons why evaluation of model fit relied primarily on analyses of plots rather than seemingly more objective procedures based on goodness-of-fit indices such as the “pseudo chi-squares” produced in BILOG (Mislevy & Bock, 1982). First, when the model fits, the exact sampling distributions of these indices are not well understood, even for fairly long tests. Mislevy and Stocking (1989) point out that the usefulness of these indices appears particularly limited in situations like NAEP, where examinees have been administered relatively short tests. A study by Stone, Mislevy, and Mazzeo (1994) using simulated data suggests that the correct reference chi-square distributions for these indices have considerably fewer degrees of freedom than the value indicated by the BILOG/PARSCALE program, and require additional adjustments of scale. However, it is not yet clear how to estimate the correct number of degrees of freedom and necessary scale factor adjustment factors. Consequently, pseudo chi-square goodness-of-fit indices are used only as rough guides in interpreting the severity of model departures.

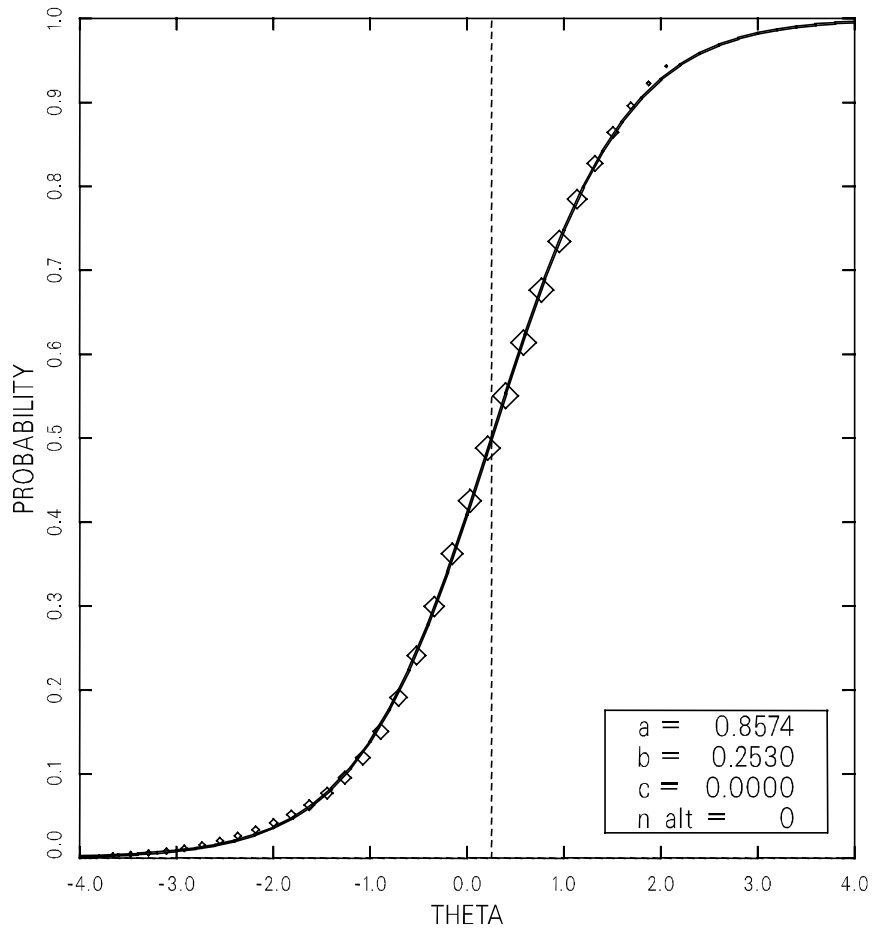
Second, as discussed in Chapter 12, it is almost certainly the case that, for most items, item response models hold only to a certain degree of approximation. Given the large sample sizes used in NAEP and the state assessment, there will be sets of items for which one is almost certain to reject the hypothesis that the model fits the data, even though departures are minimal in nature or involve kinds of misfit unlikely to impact on important model-based inferences. In practice, one is almost always forced to temper statistical decisions with judgments about the severity of model misfit and the potential impact of such misfit on final results.

To maximize the agreement between the state analysis and national analysis, the 1998 state assessment incorporated most adjustments and deletions resulting from the analysis of the 1998 national assessment in reading.

For the large majority of the items for grade 4 and grade 8 data, the fit of the model was extremely good. Figure 17-1 provides typical examples of what the plots look like for this class of items. Item R012106 for grade 4 is a binary-scored constructed-response item. Item R012711 for grade 8, at the top of Figure 17-1 (continued), is a multiple-choice item; item R013405 for grade 8, at the bottom of Figure 17-1 (continued), is a binary-scored constructed-response item. In each plot, the x -axis indicates scale score level (theta) and the y -axis indicates the probability of a correct response. The diamonds show estimates of the conditional (on theta) probability of a correct response that do not assume a logistic form (referred to subsequently as nonlogistic-based estimates). The sizes of the diamonds are proportional to the number of students categorized as having thetas at or close to the indicated value. The solid curve shows the estimated item response function. The item response function provides estimates of the

conditional probability of a correct response based on an assumed logistic form. The vertical dashed line indicates the estimated location parameter (b) for the item and the horizontal dashed line (e.g., item R012711) indicates the estimated lower asymptote (c). Also shown in the plot are the values of the item parameter estimates. As is evident from the plots, the nonlogistic-based estimates of conditional (diamonds) probabilities are in extremely close agreement with those given by the estimated item response function (the solid curves).

Figure 17-1
*Dichotomous Items (R012106, R012711, and R013405) Exhibiting Good Model Fit**

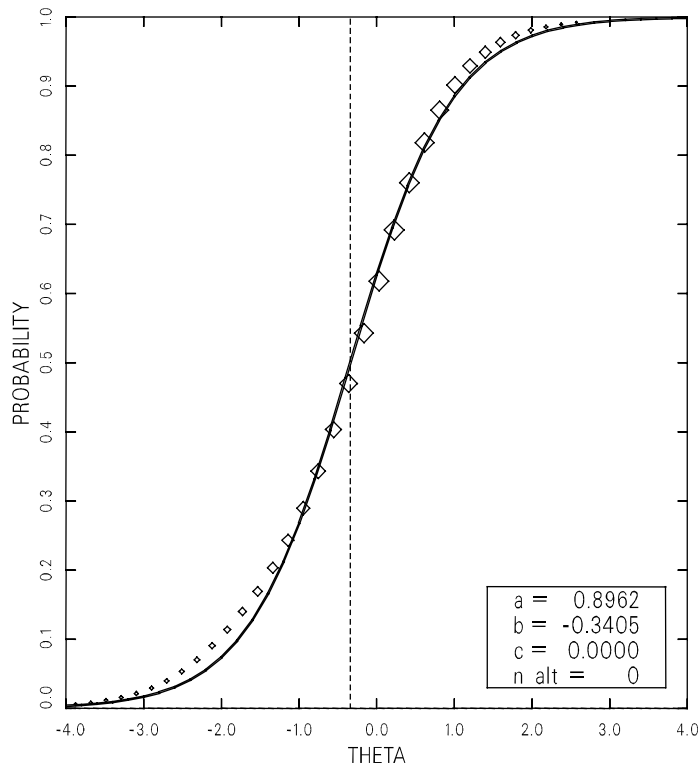
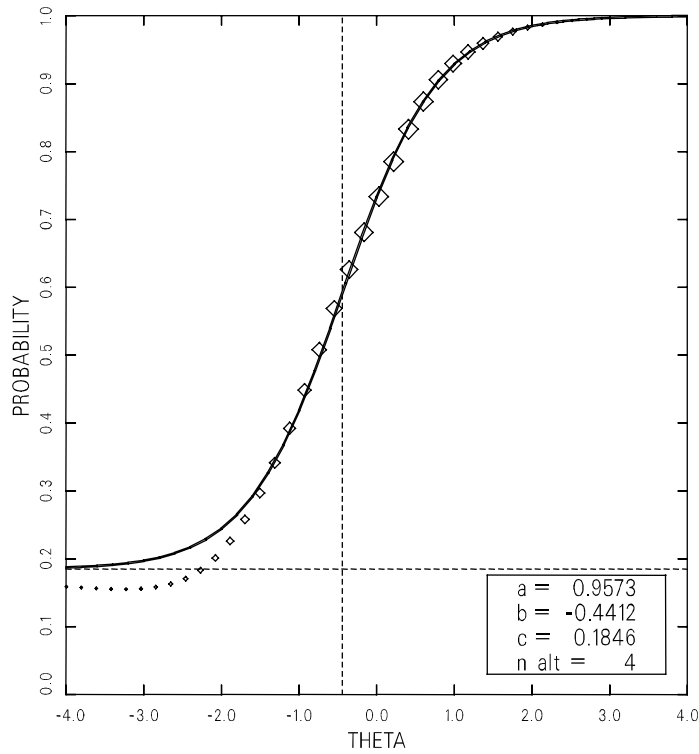


* *Diamonds represent 1998 grade 4 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.*

(continued)

Figure 17-1 (continued)

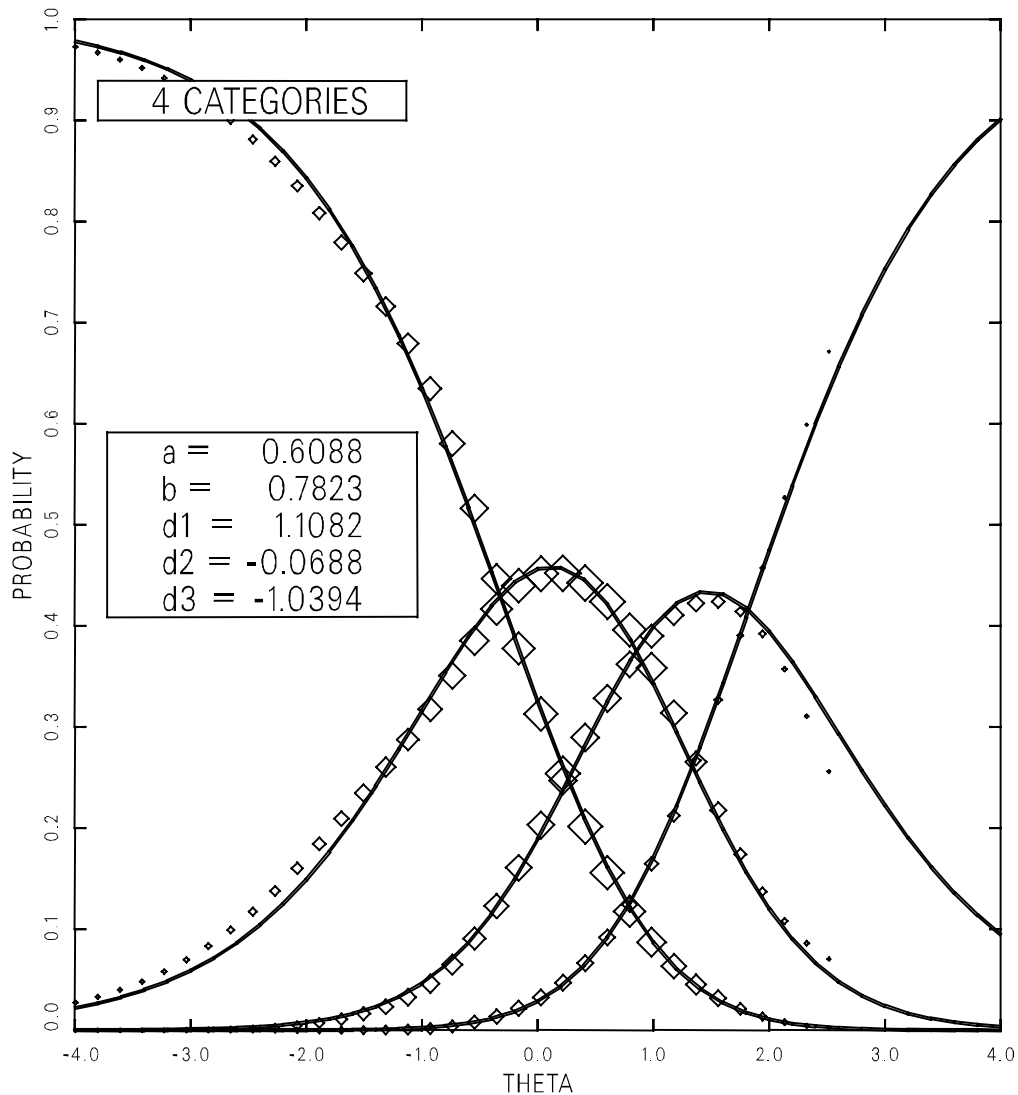
*Dichotomous Items (R012106, R012711, and R013405) Exhibiting Good Model Fit**



* Diamonds represent 1998 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

Figure 17-2 provides an example of a plot for a four-category extended constructed-response item (R013201, grade 8) exhibiting good model fit. Like the plots for the binary items, this plot shows two estimates of each item category characteristic curve, one set that does not assume the partial-credit model (shown as diamonds) and one that does (the solid curves). The estimates for all parameters for the item in question are also indicated on the plot. As shown by the figure, there is strong agreement and only slight differences between the item category characteristic curve and the curve of diamonds at the high categories. Although few student responses were scored in the highest category, there were adequate data to calculate the model-based estimates for those categories (the solid curves). Such results were typical for the extended constructed-response items.

Figure 17-2
*Polytomous Item (R013201) Exhibiting Good Model Fit**



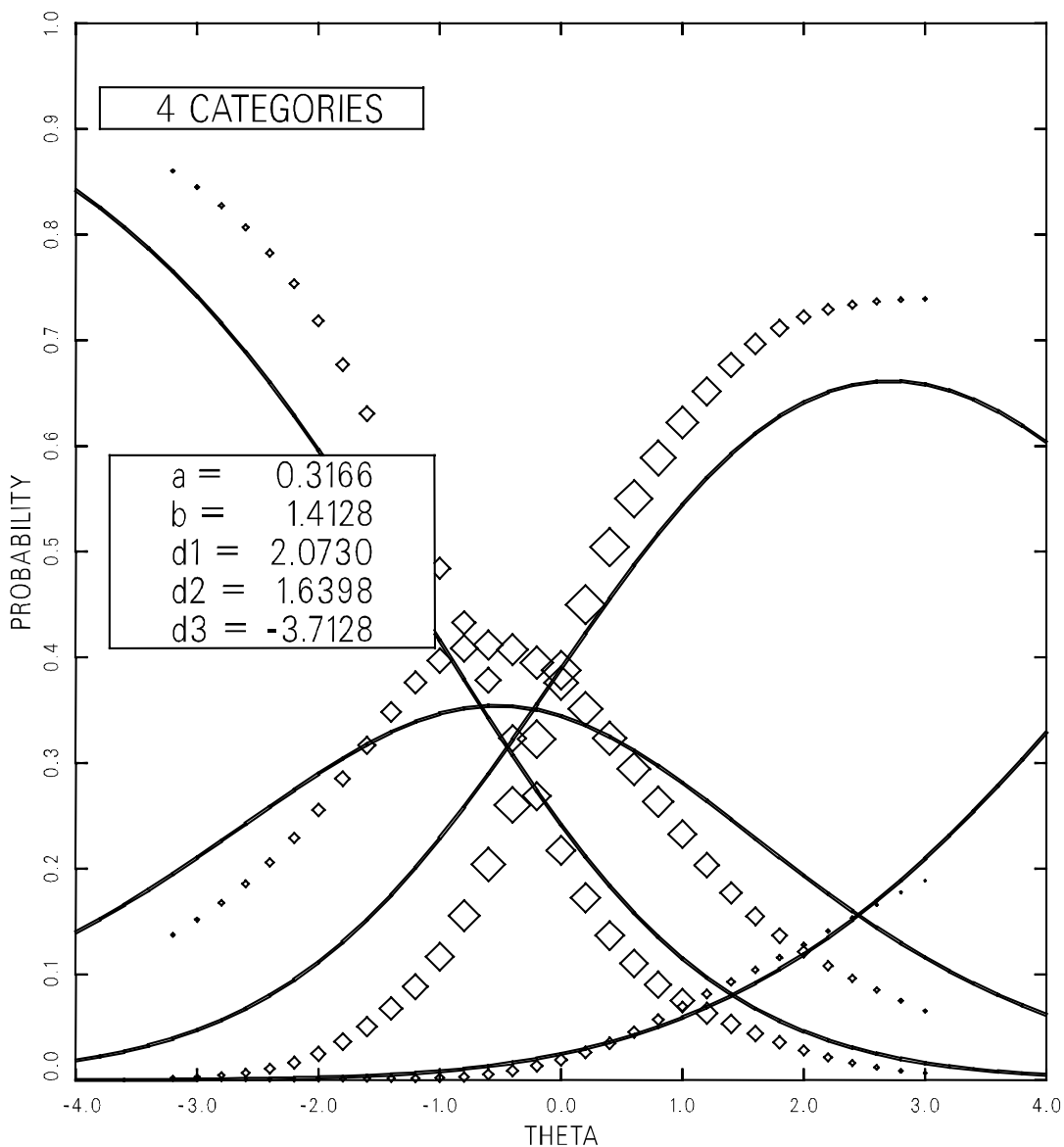
* Diamonds represent 1998 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

17.3.2 Recoded Extended Constructed-Response Items

As discussed above, some of the items retained for the final scales display some degree of model misfit. In general, good agreement between nonlogistic and logistic estimates of conditional probabilities was found in the regions of the theta scale that includes most of the examinees. Misfit was confined to conditional probabilities associated with theta values in the tails of the subject ability distributions.

For grade 4 data, item R012111, an item of Literary Experience in the eleventh position in block R4, received special treatment in the scaling process in the 1992, 1994, and 1998 assessments. Figure 17-3 shows the plot of item R012111 before collapsing unsatisfactory and partial-response categories using 1998 assessment data.

Figure 17-3
*Polytomous Item (R012111) Before Collapsing Unsatisfactory and Partial-Response Categories**



* Diamonds represent 1998 grade 4 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

To obtain a good fit of the generalized partial-credit model to the extended constructed-response items in 1998 assessment, the categories 0 and 1 were combined and the other categories were relabeled as in previous assessments. Therefore, the codings for the three scoring levels were defined:

- 0 = Unsatisfactory, partial response, or omitted
- 1 = Essential response
- 2 = Extensive response

The plot for this item for the 1998 data after collapsing the unsatisfactory and partial-response categories is given in Figure 17-4. The figure shows good model fit, except that the nonlogistic-based estimates tend to be somewhat different from the model-based estimates for theta values greater than 1. Note that this item is functioning essentially as a dichotomous item due to the small frequencies in the top category. There were enough data, however, to calculate the model-based estimates of the category-characteristic curve for this category (shown as the rightmost solid curve in both figures).

Another fourth-grade item, R015707, an item of Gain Information in the seventh position in block R8, also received special treatment in the 1994 and 1998 assessments. As with item R012111, the general partial-credit model did not fit the response to the extended constructed-response item R015707 well. This Reading to Gain Information item was treated the same way as was item R012111, and good model-data fit was obtained.

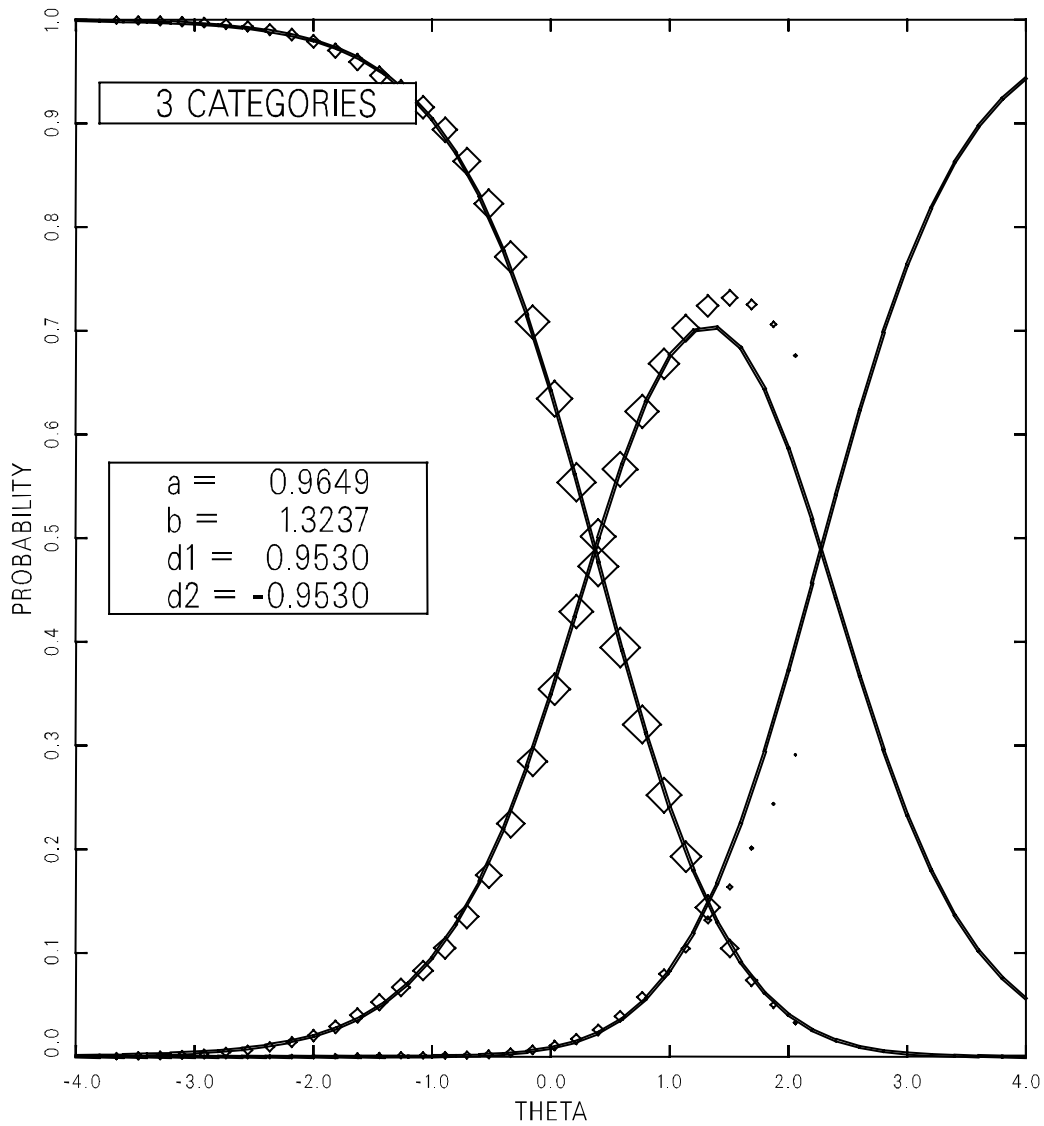
To be consistent with the scaling of the 1998 national reading assessment for grade 8 data, item R017110, an item of Literary Experience in the tenth position in block R3, received special treatment. The categories 0 and 1 were combined as 0 and the other categories were relabeled as 1. Therefore R017110 was defined as a dichotomous item. A plot for this item after collapsing the categories is displayed in Figure 17-5.

To be consistent with the previous assessments, for grade 8 data, item R017102, an item of Literary Experience in the second position in block R3, received special treatment. It was recoded as a dichotomous item: the categories 0 and 1 were combined as 0 and the other categories were relabeled as 1. Item R016212, an item of Gain Information in the twelfth position in block R13, was recoded in the state assessment as it was recoded in the national assessment: The categories 0 and 1 were combined as 0 and the other categories were relabeled as 1. A plot for this item after collapsing the categories is displayed in Figure 17-6.

The IRT parameters for the items included in the state assessment are listed in Appendix E.

Figure 17-4

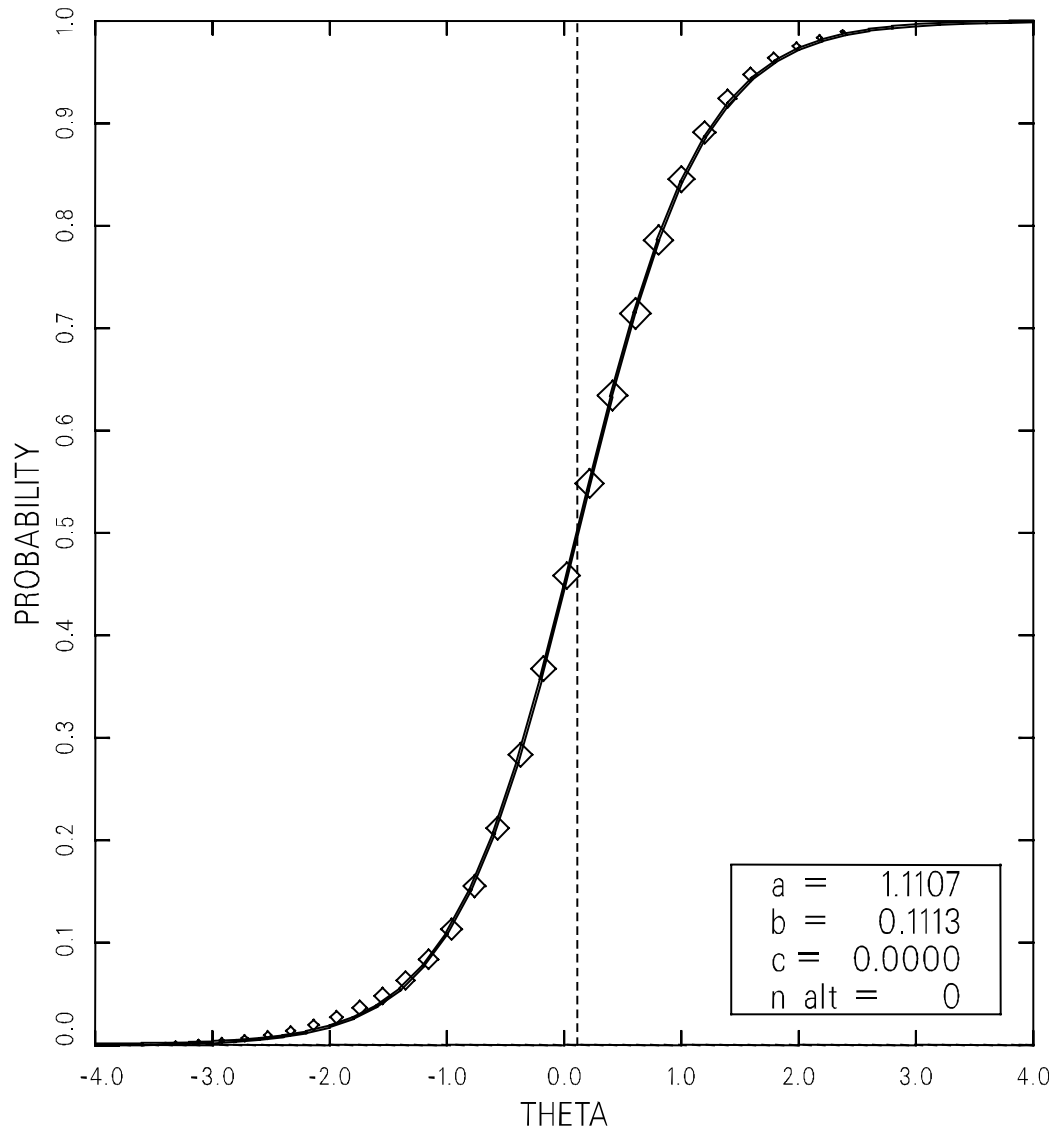
*Polytomous Item (R012111) After Collapsing Unsatisfactory and Partial-Response Categories**



** Diamonds represent 1998 grade 4 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

Figure 17-5

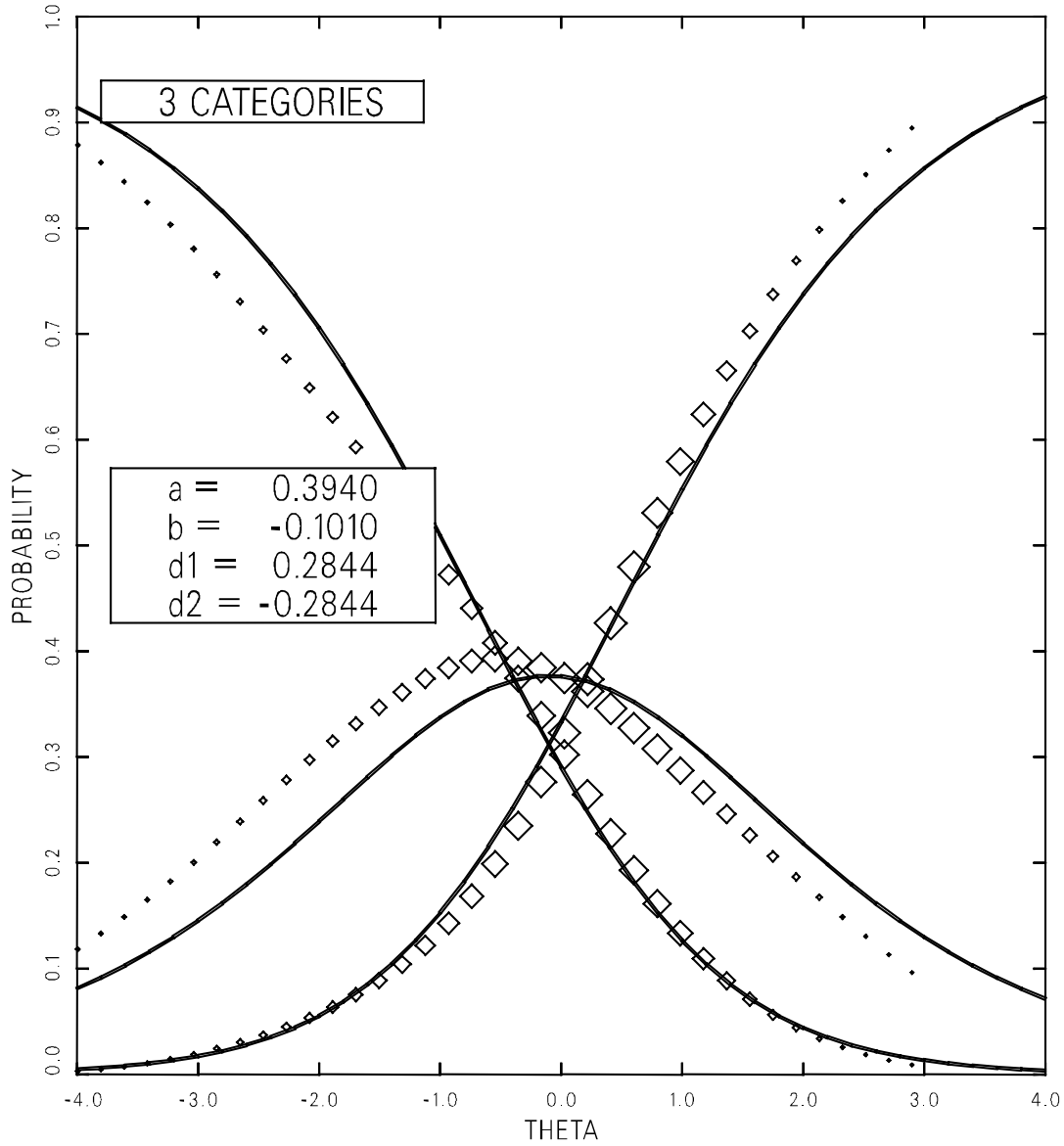
*Polytomous Item (R017110) After Collapsing Unsatisfactory and Partial-Response Categories**



* Diamonds represent 1998 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

Figure 17-6

*Polytomous Item (R016212) After Collapsing Unsatisfactory and Partial-Response Categories**



** Diamonds represent 1998 grade 8 reading assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

17.4 GENERATION OF PLAUSIBLE VALUES

The scale score distributions for each jurisdiction (and for subgroups of interest within each jurisdiction) were estimated using the multivariate plausible values methodology and the corresponding CGROUP computer program. As described in Chapter 12, the CGROUP program estimates scale score distributions using information from student item responses, measures of student background variables, and the item parameter estimates obtained from the BILOG/PARSCALE program.

Results from Mazzeo's research (1991) suggested that separate conditioning models be estimated for each jurisdiction because the parameters estimated by the conditioning model differed across jurisdictions. If a jurisdiction had a nonpublic-school sample, students from that sample were included in this part of the analysis, and a conditioning variable differentiating between public- and nonpublic-school students was included. This resulted in the estimation of 44 distinct conditioning models for grade 4, and 41 distinct conditioning models for grade 8.

Reporting each jurisdiction's results required analyses describing the relationships between scale scores and a large number of background variables. The background variables included in each jurisdiction's model were principal component scores derived from the within-jurisdiction correlation matrix of selected main-effects and two-way interactions associated with a wide range of student, teacher, school, and community variables. The background variables included student demographic characteristics (e.g., the race/ethnicity of the student, highest level of education attained by parents), students' perceptions about reading, student behavior both in and out of school (e.g., amount of TV watched daily, amount of reading homework done each day), the type of reading class being taken, and a variety of other aspects of the students' background and preparation, and the educational, social, and financial environment of the schools they attended. Information was also collected from students' teachers about their teaching practices, such as the amount of classroom emphasis on various topics included in the assessment, and their educational background and professional preparation.

As described in the previous chapter, to avoid biases in reporting results and to minimize biases in secondary analyses, it is desirable to incorporate measures of a large number of independent variables in the conditioning model. For grade 4, when expressed in terms of contrast-coded main effects and interactions, the number of variables to be included totaled 1,086; for grade 8, the number of variables to be included totaled 1,064. Appendix F provides a listing of the full set of contrasts defined. These contrasts were the common starting point in the development of the conditioning models for each of the participating jurisdictions.

Because of the large number of these contrasts and the fact that, within each jurisdiction, some contrasts had zero variance, some involved relatively small numbers of individuals, and some were highly correlated with other contrasts or sets of contrasts, an effort was made to reduce the dimensionality of the predictor variables in each jurisdiction's CGROUP models. As was done for the 1990 and 1992 state assessments in mathematics and the 1992 and 1994 state assessments in reading, the original background variable contrasts were standardized and transformed into a set of linearly independent variables by extracting separate sets of principal components (one set for each of the 44 jurisdictions) from the within-jurisdiction correlation matrices of the original contrast variables. The principal components, rather than the original variables, were used as the independent variables in the conditioning model. As was done for the previous assessments, the number of principal components included for each jurisdiction was the number required to account for approximately 90 percent of the variance in the original contrast variables. Research based on data from the 1990 state assessment in mathematics suggested that results obtained using such a subset of the components will differ only slightly from those obtained using the full set (Mazzeo et al., 1992).

Table 17-14
Summary Statistics for State Assessment Conditioning Models, Grade 4

Jurisdiction	Number of Principal Components	Proportion* of Scale Score Variance in the Reading Assessment for Literary Experience Scale Accounted for by the Conditioning Model	Proportion* of Scale Score Variance in the Reading Assessment to Gain Information Scale Accounted for by the Conditioning Model	Conditional Correlation Between Literary Experience and Gain Information
Alabama	240	0.68	0.69	0.86
Arizona	242	0.71	0.72	0.89
Arkansas	253	0.68	0.69	0.86
California	195	0.70	0.71	0.89
Colorado	236	0.61	0.65	0.86
Connecticut	262	0.71	0.69	0.78
Delaware	231	0.77	0.75	0.85
District of Columbia	186	0.64	0.69	0.87
Florida	278	0.69	0.67	0.90
Georgia	275	0.74	0.75	0.84
Hawaii	260	0.62	0.56	0.84
Iowa	202	0.66	0.65	0.77
Kansas	191	0.69	0.74	0.85
Kentucky	221	0.70	0.67	0.87
Louisiana	256	0.56	0.61	0.86
Maine	230	0.73	0.76	0.80
Maryland	218	0.58	0.48	0.91
Massachusetts	235	0.68	0.72	0.89
Michigan	229	0.69	0.71	0.86
Minnesota	243	0.72	0.66	0.89
Mississippi	247	0.54	0.70	0.90
Missouri	241	0.66	0.63	0.89
Montana	180	0.80	0.75	0.80
Nebraska	110	0.93	0.89	0.91
Nevada	256	0.56	0.71	0.92
New Hampshire	209	0.84	0.80	0.86
New Mexico	238	0.65	0.67	0.91
New York	238	0.67	0.68	0.75
North Carolina	258	0.58	0.59	0.84
Oklahoma	234	0.66	0.72	0.89
Oregon	226	0.70	0.72	0.84
Rhode Island	253	0.68	0.68	0.76
South Carolina	254	0.67	0.66	0.88
Tennessee	253	0.68	0.61	0.85
Texas	235	0.75	0.73	0.90
Utah	238	0.64	0.64	0.88
Virginia	259	0.71	0.67	0.93
Virgin Islands	160	0.49	0.62	0.90
Washington	233	0.55	0.58	0.91
West Virginia	217	0.64	0.66	0.80
Wisconsin	219	0.87	0.82	0.90
Wyoming	206	0.80	0.78	0.86
DoDEA/DDESS	184	0.65	0.69	0.90
DoDEA/DoDDS	207	0.88	0.86	0.77

* (Total Variance – Residual Variance)/Total Variance, where Total Variance consists of both sampling and measurement error variance.

Table 17-15
Summary Statistics for State Assessment Conditioning Models, Grade 8

Jurisdiction	Number of Principal Components	Proportion* of Scale Score Variance in the Reading for Literary Experience Scale Accounted for by the Conditioning Model	Proportion* of Scale Score Variance in the Reading to Gain Information Scale Accounted for by the Conditioning Model	Proportion* of Scale Score Variance in the Reading to Perform a Task Scale Accounted for by the Conditioning Model	Conditional Correlation Between Literary Experience and Gain Information	Conditional Correlation Between Literary Experience and Perform a Task	Conditional Correlation Between Gain Information and Perform a Task
Alabama	229	0.70	0.66	0.74	0.90	0.90	0.93
Arizona	244	0.69	0.72	0.82	0.87	0.85	0.85
Arkansas	233	0.72	0.68	0.76	0.79	0.76	0.88
California	245	0.76	0.72	0.82	0.82	0.87	0.82
Colorado	233	0.69	0.71	0.73	0.83	0.85	0.92
Connecticut	264	0.73	0.78	0.81	0.92	0.80	0.83
Delaware	179	0.78	0.72	0.84	0.92	0.89	0.91
District of Columbia	148	0.77	0.72	0.78	0.91	0.86	0.87
Florida	267	0.76	0.60	0.79	0.79	0.71	0.88
Georgia	283	0.77	0.78	0.83	0.89	0.90	0.90
Hawaii	194	0.58	0.59	0.70	0.82	0.78	0.83
Kansas	191	0.81	0.71	0.74	0.92	0.92	0.87
Kentucky	222	0.70	0.63	0.72	0.92	0.85	0.89
Louisiana	255	0.75	0.74	0.77	0.78	0.76	0.81
Maine	210	0.75	0.77	0.83	0.87	0.83	0.91
Maryland	234	0.66	0.67	0.67	0.86	0.89	0.91
Massachusetts	232	0.75	0.74	0.85	0.91	0.86	0.88
Minnesota	197	0.81	0.69	0.80	0.83	0.77	0.82
Mississippi	223	0.72	0.57	0.67	0.88	0.92	0.92
Missouri	236	0.67	0.69	0.75	0.85	0.88	0.89
Montana	172	0.88	0.76	0.89	0.91	0.86	0.93
Nebraska	99	1.00	0.96	1.00	0.55	0.33	0.58

* (Total Variance – Residual Variance)/Total Variance, where Total Variance consists of both sampling and measurement error variance.

(continued)

Table 17-15 (continued)
Summary Statistics for State Assessment Conditioning Models, Grade 8

Jurisdiction	Number of Principal Components	Proportion* of Scale Score Variance in the Reading for Literary Experience Scale Accounted for by the Conditioning Model	Proportion* of Scale Score Variance in the Reading to Gain Information Scale Accounted for by the Conditioning Model	Proportion* of Scale Score Variance in the Reading to Perform a Task Scale Accounted for by the Conditioning Model	Conditional Correlation Between Literary Experience and Gain Information	Conditional Correlation Between Literary Experience and Perform a Task	Conditional Correlation Between Gain Information and Perform a Task
Nevada	213	0.75	0.64	0.79	0.91	0.92	0.92
New Mexico	234	0.73	0.69	0.84	0.71	0.66	0.93
New York	221	0.78	0.75	0.77	0.83	0.84	0.89
North Carolina	271	0.64	0.60	0.71	0.81	0.72	0.82
Oklahoma	219	0.69	0.74	0.85	0.90	0.80	0.85
Oregon	225	0.82	0.76	0.82	0.87	0.90	0.91
Rhode Island	206	0.74	0.70	0.79	0.85	0.80	0.88
South Carolina	279	0.77	0.75	0.78	0.90	0.87	0.94
Tennessee	222	0.62	0.70	0.82	0.89	0.86	0.89
Texas	249	0.79	0.71	0.78	0.85	0.89	0.86
Utah	241	0.72	0.70	0.76	0.77	0.81	0.84
Virginia	273	0.78	0.72	0.81	0.82	0.76	0.84
Virgin Islands	129	0.75	0.64	0.81	0.96	0.95	0.94
Washington	247	0.74	0.70	0.75	0.91	0.87	0.91
West Virginia	229	0.78	0.76	0.77	0.92	0.92	0.90
Wisconsin	195	0.84	0.83	0.90	0.91	0.86	0.88
Wyoming	181	0.88	0.85	0.92	0.79	0.84	0.87
DoDEA/DDESS	130	0.98	0.92	0.97	0.87	0.87	0.88
DoDEA/DoDDS	160	0.89	0.86	0.90	0.83	0.83	0.90

* (Total Variance – Residual Variance)/Total Variance, where Total Variance consists of both sampling and measurement error variance

Tables 17-14 for grade 4 and 17-15 for grade 8 list the number of principal components included in and the proportion of scale score variance accounted for by the conditioning model for each participating jurisdiction. It is important to note that the proportion of variance accounted for by the conditioning model differs across scales within a jurisdiction, and across jurisdictions within a scale. Such variability is not unexpected for at least two reasons. First, there is no reason to expect the strength of the relationship between scale score and demographics to be identical across all jurisdictions. In fact, one of the reasons for fitting separate conditioning models is that the strength and nature of this relationship may differ across jurisdictions. Second, the homogeneity of the demographic profile also differs across jurisdictions. As with any correlation analysis, restriction of the range in the predictor variables will attenuate the relationship.

Table 17-16 provides a matrix of estimated within-state correlations among the three purpose for reading scales averaged over the 40 jurisdictions for grade 8. In parentheses are the lowest and the highest estimated correlation among the 40 jurisdictions. The listed values, taken directly from the CGROUP program, are estimates of the within-state correlations conditional on the set of principal components included in the conditioning model. For grade 4, the average correlation between Literary Experience and Gain Information is 0.86, with a range of (0.75, 0.93).

Table 17-16
Average Correlations and Ranges of Scale
Correlations Among the Reading Scales for 40 Jurisdictions for Grade 8*

	Literary Experience	Perform A Task
Literary Experience	1.0 (1.0)	0.83 (0.66 - 0.95)
Gain Information	0.86 (0.71 - 0.96)	0.88 (0.81 - 0.94)

* Since Nebraska only had private schools participating, it was not included in the calculation of the average correlation.

As discussed in Chapter 12, NAEP scales are viewed as summaries of consistencies and regularities that are present in item-level data. Such summaries should agree with other reasonable summaries of the item-level data. In order to evaluate the reasonableness of the scaling and estimation results, a variety of analyses were conducted to compare state-level and subgroup-level performance in terms of the content-area scale scores and in terms of the average proportion correct for the set of items in a content area. High agreement was found in all of these analyses. One set of such analyses is presented in Figures 17-7 and 17-8. The figures contain scatterplots of the state scale score mean (mean scale score) versus the state item score means, for each of the two reading content areas and the composite scale for grade 4 and the three reading content areas and the composite scale for grade 8. As is evident from the figures, there is an extremely strong relationship between the estimates of state-level performance in the scale score and item score metrics for both figures.

Figure 17-7

Plot of Mean Scale Score Versus Mean Item Score by Jurisdiction, Grade 4

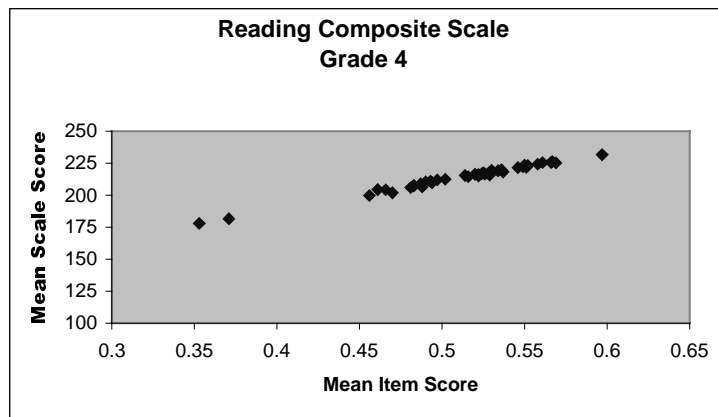
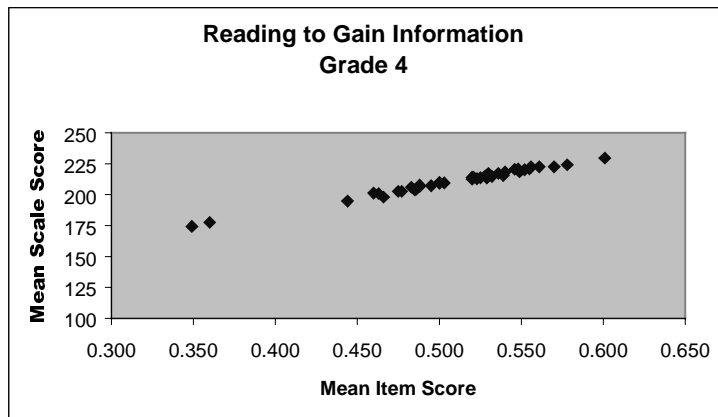
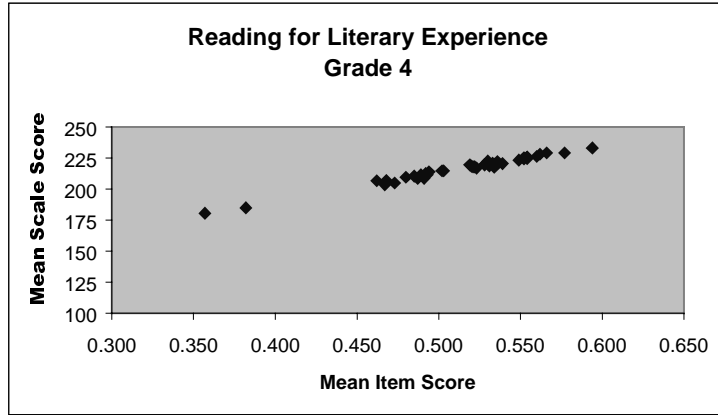
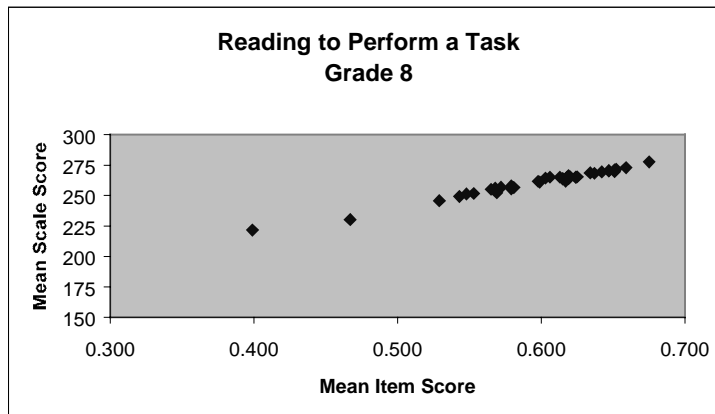
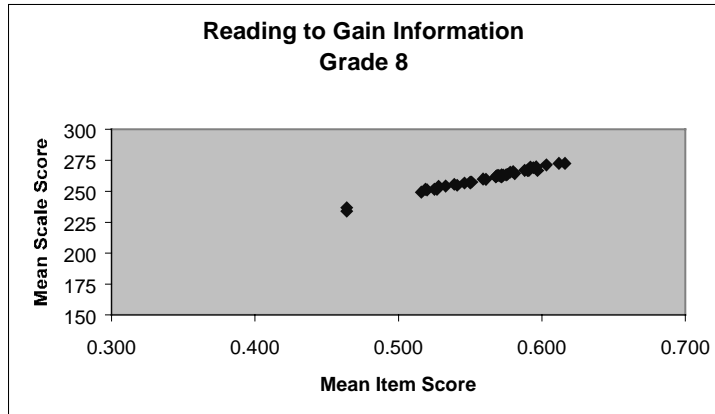
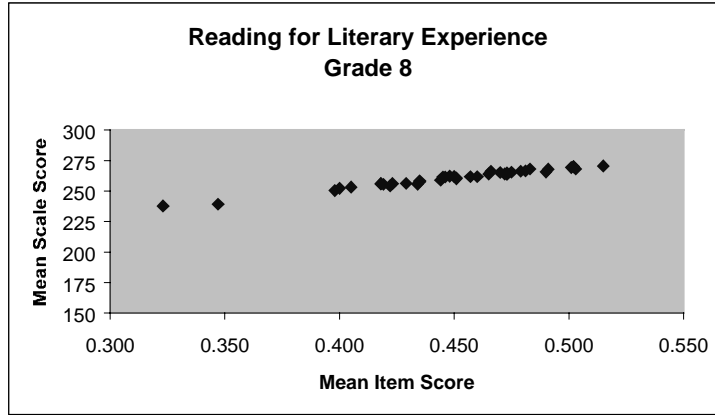


Figure 17-8

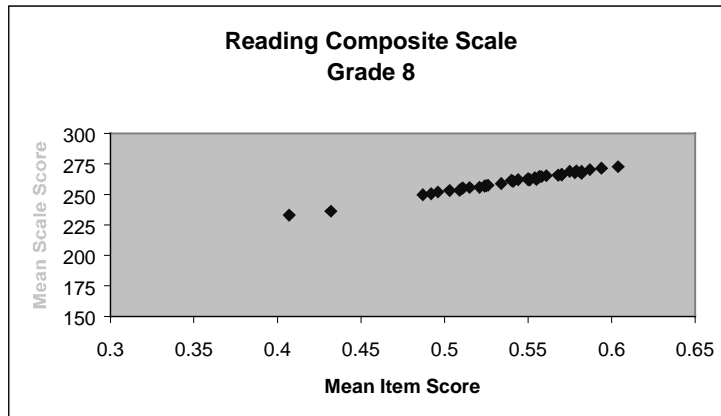
Plot of Mean Scale Score Versus Mean Item Score by Jurisdiction, Grade 8



(continued)

Figure 17-8 (continued)

Plot of Mean Scale Score Versus Mean Item Score by Jurisdiction, Grade 8



17.5 THE FINAL SCORE SCALES

17.5.1 Linking State and National Scales

A major purpose of the state assessment program was to allow each participating jurisdiction to compare its 1998 results with the nation as a whole and with the region of the country in which that jurisdiction is located. Although the students in the 1998 state reading assessment were administered the same test booklets as the fourth- and eighth-graders in the national assessment, separate state and national scalings were carried out (for reasons explained in Mazzeo, 1991, and Yamamoto & Mazzeo, 1992). Again, to ensure a similar scale unit system for the state and national metrics, the scales had to be linked.

For meaningful comparisons to be made between each of the state assessment jurisdictions and the relevant national samples, results from these two assessments had to be expressed in terms of a similar system of scale units. The purpose of this section is to describe the procedures used to align the 1998 state assessment scales with their 1998 national counterparts. The procedures that were used represent an extension of the common population equating procedures employed to link the previous national and state scales (Mazzeo, 1991; Yamamoto & Mazzeo, 1992).

Using the house sampling weights provided by Westat (see Section 15.5), the combined sample of students from all participating jurisdictions was used to estimate the distribution of scale scores for the population of students enrolled in public schools that participated in the state assessment.⁴ The total sample sizes were 104,129 for the fourth-graders, and 94,429 for the eighth-graders. A subsample of the fourth-grade national sample, consisting of grade-eligible public-school students from any of the 44 jurisdictions that participated in the 1998 state assessment, was used to obtain estimates of the distribution of scale scores for the same target population. A subsample of the eighth-grade national sample, consisting of the students from any of the 41 jurisdictions that participated in the 1998 state assessment, was used to obtain estimates of the distribution of scale scores for the same target population. This subsample of national data is referred to as the national linking sample (NL).⁵ Again,

⁴ Students from Virgin Islands, DoDEA/DDESS, and DoDEA/DoDDS schools were excluded from the state aggregate sample for purposes of linking.

⁵ Note that in previous state assessments, the national linking sample was called the state aggregate comparison, or SAC, sample. Many people thought this was easy to confuse with state data, so the term "national linking" is used in this report.

appropriate weights provided by Westat were used. Thus, for each scale, two sets of scale score distributions were obtained and used in the linking process. One set, based on the sample of combined data from the state assessment (referred to as the state aggregate, or SA) and using item parameter estimates and conditioning results from that assessment, was in the metric of the 1998 state assessment. The other, based on the NL sample from the 1998 national assessment and obtained using item parameters and conditioning results from the national assessment, was in the reporting metric of the 1998 national assessment. The state assessment and national scales, two for grade 4 and three for grade 8, were made comparable by constraining the mean and standard deviation of the two sets of estimates to be equal.

More specifically, the following steps were followed to linearly link the scales of the two assessments:

- 1) For each scale, estimates of the scale score distribution for the SA sample was obtained using the full set of plausible values generated by the CGROUP program. The weights used were the final (reporting sample) sampling weights provided by Westat (see Section 15.5). For each scale, the arithmetic mean of the five sets of plausible values was taken as the overall estimated mean and the arithmetic average of the standard deviations of the five sets of plausible values was taken as the overall estimated standard deviation.
- 2) For each scale, the estimated scale score distribution of the NL sample was obtained, again using the full set of plausible values generated by the CGROUP program. The weights used were specially provided by Westat to allow for the estimation of scale score distributions for the same target population of students estimated by the jurisdiction data. The means and standard deviations of the distributions (in the 1998 national reporting metric) for each scale were obtained for this sample in the same manner as described in Step 1.
- 3) For each scale, a set of linear transformation coefficients was obtained to link the state scale to the corresponding national scale. The linking was of the form

$$\theta^* = A \bullet \theta + B$$

where

θ = a scale score level in terms of the system of units of the provisional BILOG/PARSCALE scale of the state assessment scaling

θ^* = a scale score level in terms of the system of units comparable to those used for reporting the 1998 national reading results

$$A = [\text{Standard Deviation}_{\text{NL}}]/[\text{Standard Deviation}_{\text{SA}}]$$

$$B = \text{Mean}_{\text{NL}} - A \bullet [\text{Mean}_{\text{SA}}]$$

where the subscripts refer to the NL sample and to the SA sample.

The final conversion parameters for transforming plausible values from the provisional BILOG/PARSCALE scales to the final state assessment reporting scales are given in Table 17-17. All state assessment results are reported in terms of the Y^* metric.

Table 17-17
*Coefficients of Linear Transformations
for the 1998 State Reading Assessment*

Grade	Field of Reading Scale	A	B
4	Literary Experience	39.66	216.15
	Gain Information	38.88	211.09
8	Literary Experience	31.55	260.11
	Gain Information	35.89	259.25
	Perform a Task	38.33	261.11

As is evident from the discussion above, a linear method was used to link the scales from the state and national assessments. While these linear methods ensure equality of means and standard deviations for the SA (after transformation) and the NL samples, they do not guarantee the shapes of the estimated scale score distributions for the two samples will be the same. As these two samples are both from a common target population, estimates of the scale score distribution of that target population based on each of the samples should be quite similar in shape in order to justify strong claims of comparability for the state and national scales. Substantial differences in the shapes of the two estimated distributions would result in differing estimates of the percentages of students above achievement levels or of percentile locations depending on whether state or national scales were used—a clearly unacceptable result given claims about the comparability of the scales. In the face of such results, nonlinear linking methods would be required.

Analyses were carried out to verify the degree to which the linear linking process described above produced comparable scales for state and national results. Comparisons were made between two estimated scale score distributions, one based on the SA sample and one based on the NL sample, for each of the three fields of reading scales. The comparisons were carried out using slightly modified versions of what Wainer (1974) refers to as suspended rootograms. The final reporting scales for the state and national assessments were each divided into 10-point intervals. Two sets of estimates of the percentage of students in each interval were obtained, one based on the SA sample and one based on the NL sample. Following Tukey (1977), the square roots of these estimated percentages were compared.⁶

The comparisons are shown in Figures 17-9 through 17-13. The height of each of the unshaded bars corresponds to the square root of the percentage of students from the state assessment aggregate sample in each 10-point interval on the final reporting scale. The shaded bars show the differences in root percents between the SA and NL estimates. Positive differences indicate intervals in which the estimated percentages from the NL sample are lower than those obtained from the SA. Conversely, negative differences indicate intervals in which the estimated percentages from the NL sample are higher. For all three scales, differences in root percents are quite small, suggesting that the shapes of the two estimated distributions are quite similar (i.e., unimodal with small positive coefficient of skewness). There is some evidence that the estimates produced using the NL data are slightly heavier in the extreme upper tails (above 400 for Literary reading and Information reading for grade 4; above 350 for Literary reading, above 380 for Information reading, and above 400 for Perform a Task for grade 8). However, even these differences at the extremes are small in magnitude (0.2 in the root percent metric and 0.09 in the percent metric) and have little impact on estimates of reported statistics such as percentages of students above the achievement levels.

⁶ The square root transformation allows for more effective comparisons for counts (or equivalently, percentages) when the expected number of counts in each interval is likely to vary greatly over the range of intervals, as is the case for the NAEP scales where the expected counts of individuals in intervals near the extremes of the scale (e.g., below 150 and above 350) are dramatically smaller than the counts obtained near the middle of the scale.

Figure 17-9
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample
 for the Reading for Literary Experience Scale, Grade 4*

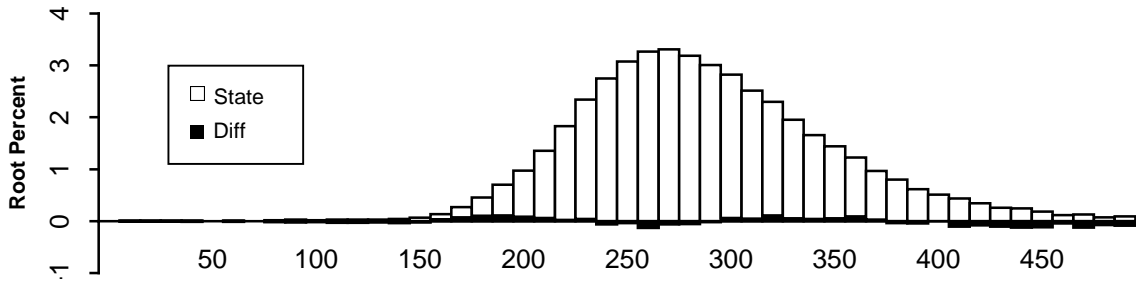


Figure 17-10
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample
 for the Reading to Gain Information Scale, Grade 4*

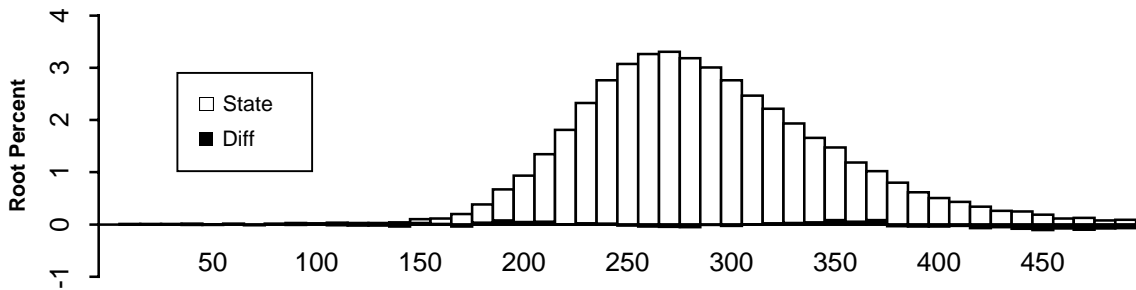


Figure 17-11
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample
 for the Reading for Literary Experience Scale, Grade 8*

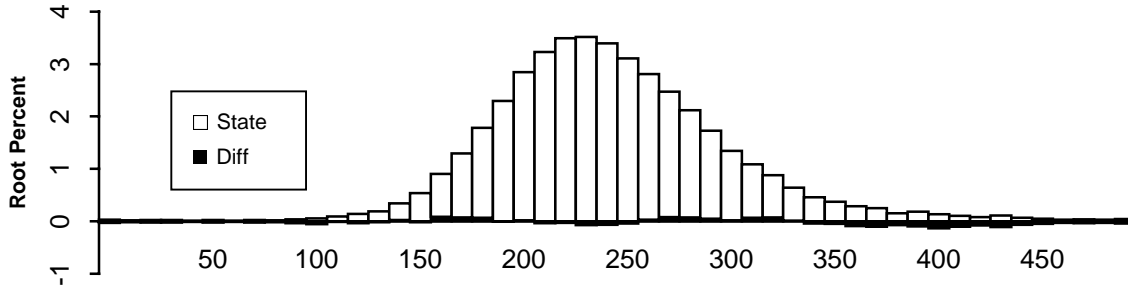


Figure 17-12
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample
 for the Reading to Gain Information Scale, Grade 8*

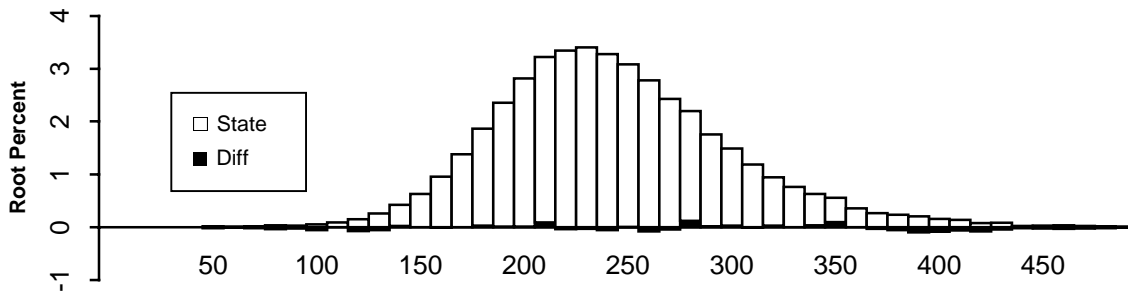
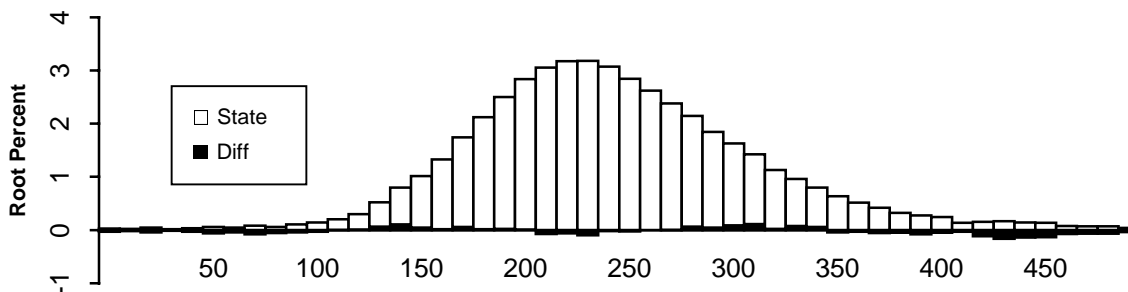


Figure 17-13
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample
 for the Reading to Perform a Task Scale, Grade 8*



17.5.2 Producing a Reading Composite Scale

For the national assessment, a composite scale was created for the fourth, eighth, and twelfth grades as an overall measure of reading scale scores for students at that grade. The composite was a weighted average of plausible values on the purpose-for-reading scales (Reading for Literary Experience, Reading to Gain Information, and at grades 8 and 12, Reading to Perform a Task). The weights for the national fields of reading scale scores were proportional to the relative importance assigned to each field of reading scale in each grade in the assessment specifications developed by the Reading Objectives Panel. Consequently, the weights for each of the fields of reading scales are similar to the actual proportion of items from that field of reading scale.

State assessment composite scales for grades 4 and 8 were developed using weights identical to those used to produce the composites for the 1998 national reading assessment. The weights are given in Table 16-14. In developing the state assessment composite, the weights were applied to the plausible values for each field of reading scale as expressed in terms of the final state assessment scales (i.e., after transformation from the provisional BILOG/PARSCALE scales.)

Figures 17-14 and 17-15 provide rootograms comparing the estimated scale score distributions based on the SA and NL samples for the grade 4 and grade 8 composites. Consistent with the results presented separately by scale, there is some evidence that the estimates produced using the NL are slightly heavier in the upper tails than the corresponding estimate based on the SA samples. Again however, these differences in root relative percents are small in magnitude.

Figure 17-14
*Rootogram Comparing Scale Score Distributions
for the State Assessment Aggregate Sample
and the National Linking Sample
for the Reading Composite Scale, Grade 4*

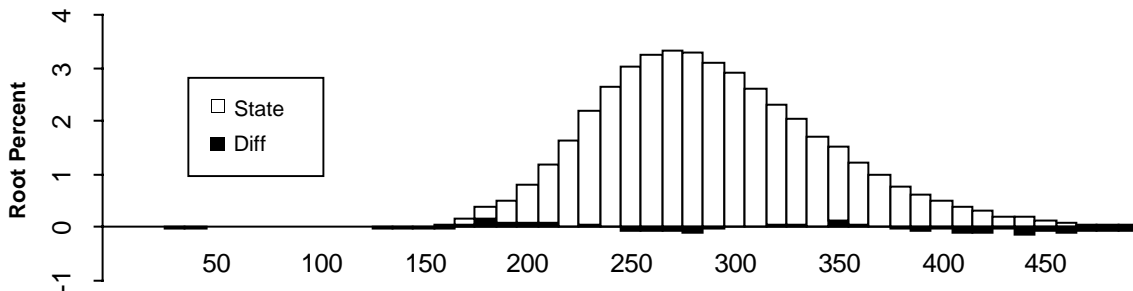
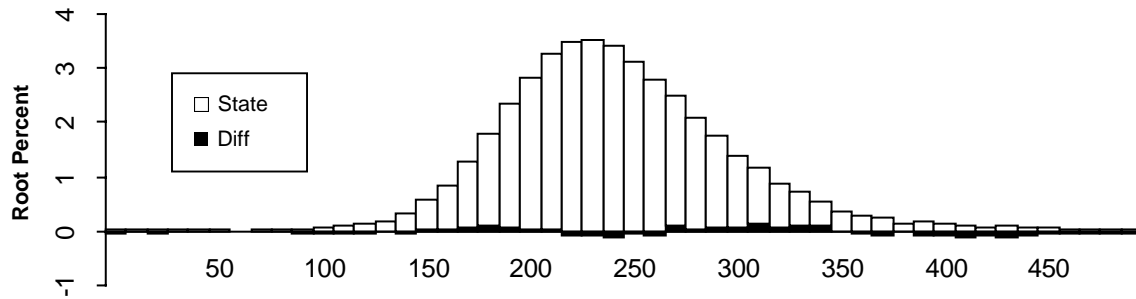


Figure 17-15
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample
 for the Reading Composite Scale, Grade 8*



17.6 PARTITIONING OF THE ESTIMATION ERROR VARIANCE

For each grade in state reading assessments, the error variance of the final transformed scale score mean was partitioned as described in Chapter 12. The partition of error variance consists of two parts: the proportion of error variance due to sampling students (sampling variance) and the proportion of error variance due to the fact that scale score, θ , is a latent variable that is estimated rather than observed. For grades 4 and 8, Tables 17-18 and 17-19 contain estimates of the total error variance, the proportion of error variance due to sampling students, and the proportion of error variance due to the latent nature of θ . Instead of using 100 plausible values as in national assessment, the calculations for the state samples are based on 5 plausible values. More detailed information is available for gender and race/ethnicity subgroups in Appendix H.

17.7 READING TEACHER QUESTIONNAIRES

Teachers of fourth- and eighth-grade students were surveyed about their educational background and teaching practices. The students were matched first with their reading teacher, and then the specific classroom period. Variables derived from the questionnaire were used in the conditioning models. An additional conditioning variable was included that indicated whether the student had been matched with a teacher record. This contrast controlled estimates of subgroup means for differences that exist between matched and nonmatched students. Of the 112,138 fourth-grade students in the sample, 105,026 (93.7%, unweighted) were matched with teachers who answered both parts of the teacher questionnaire, and 13 of the students had teachers who answered only the teacher background section of the questionnaire. For the eighth-grade sample, 82,118 of the 94,429 students (87%, unweighted) were matched to both sections of the teacher questionnaire. There were 6,575 students (7%, unweighted) who were matched with the first part of the teacher questionnaire, but could not be matched to the appropriate classroom period. Thus, 93.7 percent of the fourth-graders and 94 percent of the eighth-graders were matched with at least the background information about their reading teacher.

Table 17-18
*Estimation Error Variance and Related Coefficients
for the Reading State Assessment, Grade 4*

State	Total Estimation Error Variance	Proportion of Variance due to ...	
		Student Sampling	Latency of θ
Alabama	3.197	0.94	0.06
Arizona	4.062	0.97	0.03
Arkansas	2.208	0.93	0.07
California	10.325	0.96	0.04
Colorado	1.721	0.94	0.06
Connecticut	3.425	0.93	0.07
Delaware	1.637	0.57	0.43
Florida	2.128	0.96	0.04
Georgia	2.519	0.95	0.05
Hawaii	3.085	0.66	0.34
Iowa	1.397	0.97	0.03
Kansas	2.173	0.89	0.11
Kentucky	2.218	0.81	0.19
Louisiana	2.254	0.98	0.02
Maine	1.529	0.72	0.28
Maryland	2.656	0.97	0.03
Massachusetts	1.965	0.89	0.11
Michigan	2.755	0.94	0.06
Minnesota	2.195	0.89	0.11
Mississippi	2.123	0.98	0.02
Missouri	2.762	0.96	0.04
Montana	2.774	0.59	0.41
Nevada	1.855	0.93	0.07
New Hampshire	1.783	0.76	0.24
New Mexico	4.089	0.79	0.21
New York	2.639	0.89	0.11
North Carolina	1.804	0.89	0.11
Oklahoma	1.286	0.92	0.08
Oregon	2.644	0.94	0.06
Rhode Island	3.018	0.84	0.16
South Carolina	1.648	0.91	0.09
Tennessee	2.224	0.95	0.05
Texas	4.493	0.97	0.03
Utah	1.775	0.86	0.14
Virginia	1.777	0.97	0.03
Washington	1.791	0.97	0.03
West Virginia	2.205	0.96	0.04
Wisconsin	1.322	0.95	0.05
Wyoming	2.624	0.47	0.53
District of Columbia	1.971	0.38	0.62
DoDEA/DDESS	1.702	0.32	0.68
DoDEA/DoDDS	1.208	0.57	0.43
Virgin Islands	3.779	0.39	0.61

Table 17-19
*Estimation Error Variance and Related Coefficients
for the Reading State Assessment, Grade 8*

State	Total Estimation Error Variance	Proportion of Variance due to ...	
		Student Sampling	Latency of θ
Alabama	1.822	0.97	0.03
Arizona	1.394	0.95	0.05
Arkansas	1.753	0.79	0.21
California	2.726	0.96	0.04
Colorado	1.196	0.98	0.02
Connecticut	1.159	0.89	0.11
Delaware	1.626	0.72	0.28
Florida	2.890	0.91	0.09
Georgia	2.052	0.95	0.05
Hawaii	1.745	0.39	0.61
Kansas	1.437	0.94	0.06
Kentucky	1.664	0.98	0.02
Louisiana	2.157	0.95	0.05
Maine	1.389	0.92	0.08
Maryland	3.376	0.82	0.18
Massachusetts	2.435	0.92	0.08
Minnesota	1.672	0.93	0.07
Mississippi	2.054	0.79	0.21
Missouri	1.728	0.85	0.15
Montana	1.291	0.72	0.28
Nevada	1.301	0.95	0.05
New Mexico	1.524	0.79	0.21
New York	2.531	0.91	0.09
North Carolina	1.301	0.85	0.15
Oklahoma	1.631	0.71	0.29
Oregon	2.087	0.91	0.09
Rhode Island	0.925	0.89	0.11
South Carolina	1.756	0.93	0.07
Tennessee	1.679	0.91	0.09
Texas	2.142	0.99	0.01
Utah	1.123	0.78	0.22
Virginia	1.232	0.90	0.10
Washington	1.639	0.88	0.12
West Virginia	1.417	0.88	0.12
Wisconsin	2.466	0.91	0.09
Wyoming	1.734	0.58	0.42
District of Columbia	3.846	0.30	0.70
DoDEA/DDESS	10.719	0.24	0.76
DoDEA/DoDDS	1.054	0.44	0.56
Virgin Islands	8.264	0.26	0.74

Chapter 18

ASSESSMENT FRAMEWORKS AND INSTRUMENTS FOR THE 1998 NATIONAL AND STATE WRITING ASSESSMENTS¹

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Educational Testing Service*

18.1 INTRODUCTION

The framework that was used for the 1998 NAEP writing assessment detailed the structure of the assessment to be given at grades 4, 8, and 12 at the national level and at grade 8 at the state level. The framework was developed under contract by the Center for Research on Evaluation, Standards, and Student Testing (CRESST) and American College Testing (ACT) for the National Assessment Governing Board (NAGB) in 1996. The framework for the writing assessment is available on the National Assessment Governing Board (NAGB) web site at <http://www.nagb.org>.

Sections 18.2 through 18.5 explain the development of the framework, objectives, and items for the 1998 NAEP writing assessment. Section 18.8 also describes the student background questionnaires and the writing teacher questionnaire. Additional information on the structure and content of assessment booklets can be found in Section 18.9. Various committees worked on the development of the framework, objectives, and items for the writing assessment. The list of committee members and consultants who participated in the 1998 development process is provided in Appendix K.

Samples of assessment instruments and student responses are published in the *NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald, Persky, Campbell, & Mazzeo, 1999).

18.2 DEVELOPING THE WRITING ASSESSMENT FRAMEWORK

NAGB is responsible for setting policy for NAEP; this policy-making role includes the development of assessment frameworks and test specifications. Appointed by the Secretary of Education from lists of nominees proposed by the board itself in various statutory categories, the 24-member board is composed of state, local, and federal officials, as well as educators and members of the public.

NAGB began the development process for the 1998 writing objectives by convening a writing framework panel. The panel solicited recommendations from members of the academic and business communities, from state and local government representatives, from members of the press, and from the general public. After reviewing the responses, the panel designed the framework.

For more detail on the development and specifications of the writing framework, refer to the *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress, 1992–1998* (NAGB, 1996b).

¹ Elissa A. Greenwald managed the item-development process for the 1998 NAEP writing assessment. Terry L. Schoeps coordinates the production of NAEP technical reports.

18.3 WRITING FRAMEWORK AND ASSESSMENT DESIGN PRINCIPLES

The writing framework was designed to focus on writing processes and outcomes, rather than to reflect a particular instructional or theoretical approach. The framework focuses not on the specific writing skills that lead to outcomes, but rather on the quality of the outcomes themselves. The framework was intended to embody a broad view of writing by addressing the increasingly higher level of literacy needed for employment, personal development, and good citizenship. The people who designed the framework also relied on contemporary writing research and sought to use nontraditional assessment formats that resemble desired classroom activities to the extent possible within the constraints of a timed assessment.

The development of the framework objectives was guided by the consideration that the assessment should reflect many of the curricular emphases and objectives in various states, localities, and school districts, as well as what various scholars, practitioners, and interested citizens believed should be included in the assessment. Under contract to NAGB, ACT developed the test specifications to address overarching objectives of the 1998 writing assessment framework:

- Write for a variety of purposes—narrative, informative, and persuasive
- Write on a variety of tasks and for many different audiences
- Write from a variety of stimulus materials and within various time constraints
- Generate, draft, revise, and edit ideas and forms of expression in their writing
- Display effective choices in the organization of their writing
- Value writing as a communicative activity

18.4 FRAMEWORK FOR THE 1998 WRITING ASSESSMENT

The 1998 writing assessment framework was organized according to three *purposes for writing*:

- Narrative
- Informative
- Persuasive

Narrative writing tasks require students to produce a story or personal essay. Informative writing tasks focus primarily on the subject-matter element in communication. Informative writing is used to share knowledge and to convey messages, instructions, and ideas. In persuasive writing, the primary aim is to influence others to take some action or to bring about change. This type of writing involves a clear awareness of what arguments might most affect the audience being addressed. Further explanation of the purposes is contained in Figure 18-1.

The cognitive portion of the writing assessment included only constructed-response exercises. These tasks were designed to measure students' abilities to write for a variety of purposes and to a diverse set of audiences. To accomplish these goals, a wide variety of stimulus materials were used in the assessment. The first step in the development effort was the identification of appropriate stimulus materials that would allow the construction of tasks that would, in aggregate, measure the range of writing outcomes described in the framework.

Figure 18-1
*Description of NAEP 1998 Writing Purposes**

Narrative

Narrative writing involves the production of stories or personal essays. Practice with these forms helps writers to develop an ear for language. Also, informative and persuasive writing can benefit from many of the strategies used in narrative writing. For example, there must be an effective ordering of events when relating an incident as part of a report. Sometimes narrative writing contributes to an awareness of the world as the writer creates, manipulates, and interprets reality. Such writing—whether fact or fiction, poem, play, or personal essay—requires close observation of people, objects, and places. Further, this type of writing fosters creativity, imagination, and speculation by allowing the writer to express thoughts and then stand back, as a more detached observer might, and grasp more fully what is being felt and why. Thus, narrative writing offers a special opportunity to analyze and understand emotions and actions.

Informative

Informative writing focuses primarily on the subject-matter element in communication. This type of writing is used to share knowledge and to convey messages, instructions, and ideas. Like all writing, informative writing may be filtered through the writer's impressions, understanding, and feelings. Used as a means of exploration, informative writing helps both the writer and the reader to learn new ideas and to reexamine old conclusions. Informative writing may also involve reporting on events or experiences, or analyzing concepts and relationships, including developing hypotheses and generalizations. Any of these types of informative writing can be based on the writer's personal knowledge and experience or on information newly presented to the writer that must be understood in order to complete a task. Usually, informative writing involves a mix of the familiar and the new, and both are clarified in the process of writing. Depending on the task, writing based on either personal experience or secondary information may span the range of thinking skills from recall to analysis to evaluation.

Persuasive

Persuasive writing emphasizes the reader. Its primary aim is to influence others to take some action or bring about change. Persuasive writing may contain great amounts of information—facts, details, examples, comparisons, statistics, or anecdotes—but its main purpose is not simply to inform but to persuade. This type of writing involves a clear awareness of what arguments might most affect the audience being addressed. Writing persuasively also requires use of critical thinking skills such as analysis, inference, synthesis, and evaluation.

Persuasive writing is called for in a variety of situations. It may involve responding to a request for advice by giving an opinion and providing sound reasons to support it. It may also involve presenting an argument in such a way that a particular audience will find it convincing. When there is opposition, persuasive writing may entail refuting arguments that are contrary to the writer's point of view.

In all persuasive writing, authors must choose the approach they will use. They may, for instance, use emotional or logical appeals or an accommodating or demanding tone. Regardless of the situation or approach, persuasive writers must be concerned with having a particular desired effect on their readers, beyond merely adding to knowledge of the topic presented.

* The text in Figure 18-1 is from the *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress, 1992–1998* (NAGB, 1996b), developed under contract by the Center for Research on Evaluation, Standards, and Student Testing (CRESST) and American College Testing (ACT) for the National Assessment Governing Board (NAGB) in 1996.

A carefully developed and proven series of steps was used to create the assessment items. These steps are described in Chapter 2.

The distribution of items by writing purpose across grade levels recommended in the assessment framework is provided in Table 18-1.

Table 18-1
*Percentage Distribution of Items by Purpose for Writing
as Specified in the NAEP Writing Framework*

Grade	Purposes for Writing		
	Narrative	Informative	Persuasive
4	40%	35%	25%
8*	33%	33%	33%
12	25%	35%	40%

* The grade 8 percentages shown in this table do not total 100% because the numbers have been rounded.

The writing framework also discusses the ways in which the assessment tasks should be scored. Students' responses to each writing task were evaluated by trained raters who used scoring guides that emphasized development, organization, and control of language.

18.5 DEVELOPING THE WRITING COGNITIVE ITEMS

The assessment included 25-minute and 50-minute writing tasks (referred to as "blocks" in test development). Students were asked to respond to either two 25-minute writing tasks or one 50-minute writing task (for some students at grades 8 and 12). In accordance with the framework objective to include writing on a variety of tasks and for many different audiences, students were asked to write in a variety of forms. Some of the forms in which students were asked to write (across the tasks in the assessment) are listed in Figure 18-2.

Figure 18-2
NAEP 1998 Forms of Writing

<p><i>Story</i></p> <p><i>Essay</i></p> <p><i>Letter to Authority</i></p> <p><i>Letter to a Friend</i></p> <p><i>Article</i></p> <p><i>Report</i></p> <p><i>Speech</i></p>
--

18.6 DEVELOPING THE WRITING OPERATIONAL FORMS

Writing field tests were conducted in October and November of 1997 and involved national samples of fourth-, eighth-, and twelfth-grade students. More than 100 items were field tested across the three grades.

The field-test data were collected, scored, and analyzed in preparation for meetings with the Writing Instrument Development Committee. Committee members, ETS test-development staff, and NAEP/ETS staff reviewed the materials and chose the 66 writing tasks used in the operational assessment. The objectives that guided these reviews included determining

- which tasks were most related to overall student achievement;
- the need for revisions of tasks that lacked clarity or had ineffective formats; and
- which tasks could be scored with the highest levels of interrater reliability.

The tasks were chosen according to the distributions of narrative, informative, and persuasive writing tasks specified in the framework. Once the committees had selected the tasks, all tasks were rechecked for content, measurement, and sensitivity concerns. Finally, a clearance package was submitted to NCES. Throughout the clearance process, revisions were made in accordance with changes required by the government. Upon approval, the tasks (assembled into booklets) and questionnaires were ready for printing.

The 50-minute tasks that were administered at grades 8 and 12 were not administered as part of the state assessment.

18.7 DISTRIBUTION OF WRITING ASSESSMENT ITEMS

At grade 4, all tasks were 25-minute writing tasks; eight measured narrative writing, seven measured informative writing, and six measured persuasive writing. Of the 25-minute tasks administered at grade 8, seven measured narrative writing, seven measured informative writing, and six measured persuasive writing. At grade 12, of the 25-minute tasks, five measured narrative writing, seven measured informative writing, and eight measured persuasive writing. At grades 8 and 12, three 50-minute tasks were given—one for each writing purpose. The 50-minute tasks were administered in the national assessment but were not given in the state assessment.

Tables 18-2 through 18-4 provide the title and writing purpose of each writing task administered.

Table 18-2
NAEP 1998 Writing Grade 4 Blocks by Title and Writing Purpose

Writing Block Title	Block	Purpose
Aunt Dot	W3	Narrative
Cartoon Story	W4	Narrative
Very Unusual Day	W5	Narrative
Castle	W6	Narrative
Casey and Duke	W7	Narrative
Old Tree	W8	Narrative
Secret Door	W9	Narrative
Mr. Tooms	W10	Narrative
Letter from TX8	W11	Informative
Letter from MZ3	W12	Informative
Letter from Lilex	W13	Informative
Animal Lesson	W14	Informative
City Scenes	W15	Informative
Unusual Animal	W16	Informative
Favorite Object *	W17	Informative
Invisible Friend	W18	Persuasive
Day Trip *	W19	Persuasive
Class Pet	W20	Persuasive
Library Book	W21	Persuasive
Child or Adult	W22	Persuasive

* This block appeared in booklets administered to students requiring accommodations.

Table 18-3*NAEP 1998 Writing Grade 8 Blocks by Title and Writing Purpose*

Writing Block Title	Block	Purpose
Cartoon Story	W3	Narrative
President for a Day	W4	Narrative
Plums	W5	Narrative
Tower	W6	Narrative
Principal for a Day [*]	W7	Narrative
Pioneer Journal	W8	Narrative
Space Visitor	W9	Narrative
Ancient Tree [†]	W10	Narrative
Performance Review	W11	Informative
New Park	W12	Informative
Dream Weekend	W13	Informative
Backpack	W14	Informative
Designing a TV Show	W15	Informative
Save a Book	W16	Informative
Life's Lessons	W17	Informative
Vandalism [†]	W18	Informative
Lengthening the School Year [*]	W19	Persuasive
School Schedule	W20	Persuasive
Fast Food	W21	Persuasive
Class Trip	W22	Persuasive
Driving Age	W23	Persuasive
Teens in Malls	W24	Persuasive
Student of the Year [†]	W25	Persuasive

^{*} This block appeared in booklets administered to students requiring accommodations.

[†] This was a 50-minute block and was not part of the main national reporting sample.

Table 18-4
NAEP 1998 Writing Grade 12 Blocks by Title and Writing Purpose

Writing Block Title	Block	Purpose
Tall Tale	W3	Narrative
Plums	W4	Narrative
Special Object	W5	Narrative
The Arch	W6	Narrative
Pioneer Journal	W7	Narrative
Ancient Tree *	W8	Narrative
Cafeteria	W9	Informative
Writing Mentor	W10	Informative
Movie Review	W11	Informative
Technology	W12	Informative
Handbook	W13	Informative
Save a Book	W14	Informative
Life's Lessons	W15	Informative
Vandalism [†]	W16	Informative
Summer Job	W17	Persuasive
Big or Small Inventions	W18	Persuasive
Work Less/Study More	W19	Persuasive
Heroes	W20	Persuasive
One Vote *	W21	Persuasive
Teens in Malls	W22	Persuasive
Driving Age	W23	Persuasive
Person of the Year	W24	Persuasive
Campaign Speech *	W25	Persuasive

* This was a 50-minute block and was not part of the main reporting sample.

[†] This block appeared in booklets administered to students requiring accommodations.

Each student received an assessment booklet containing a either 25-minute exercises or one 50-minute exercise. Following the exercise or exercises in each booklet were a set of general background questions, a set of subject-specific background questions, and a set of questions about his or her motivation and familiarity with the assessment materials.

In the development process, every effort was made to meet the content targets specified in the assessment framework. Table 18-5 shows the approximate percentage of aggregate assessment time devoted to each purpose for writing, at each grade level. Percentages are based on the classifications agreed on by the Writing Instrument Development Committee. Note that the numbers presented in Table 18-5 differ slightly from those in Table 18-1 in that Table 18-1 (at grade 8 only) shows the distribution of assessment items as specified in the writing framework.

Table 18-5
*Percentage Distribution of Assessment Time by Grade
 and Purpose for Writing for the NAEP 1998 Writing Assessment**

Grade	Purposes for Writing		
	Narrative	Informative	Persuasive
4	40%	35%	25%
8	35%	35%	30%
12	25%	35%	40%

18.8 BACKGROUND QUESTIONNAIRES FOR THE 1998 WRITING ASSESSMENT

In addition to assessing how well students read, it is important to understand the instructional context in which writing takes place, students' home support for literacy, and students' writing habits and attitudes. To gather contextual information, NAEP assessments include background questions designed to provide insight into factors that may influence writing performance.

NAEP includes both general background questionnaires given to participants in all subjects and subject-specific questionnaires for both students and their teachers. The development of the general background questionnaires is discussed below. Members of the Writing Instrument Development Committee were consulted on the appropriateness of the issues addressed in all questionnaires that relate to writing instruction and achievement. Like the writing tasks, all background questions were submitted for extensive review and field testing. Recognizing the validity problems inherent in self-reported data, particular attention was given to developing questions that were meaningful and unambiguous and that would encourage accurate reporting.

In addition to the cognitive questions, the 1998 assessment included one five-minute set of general and one five-minute set of subject-specific background questions designed to gather contextual information about students, their instructional and recreational experiences in writing, and their attitudes toward writing. Students in the fourth grade were given additional time because the items in the general questionnaire were read aloud for them. A one-minute questionnaire was also given to students at the end of each booklet to determine students' motivation in completing the assessment and their familiarity with assessment tasks.

18.8.1 Student Writing Questionnaires

Three sets of multiple-choice background questions were included as separate sections in each student booklet:

General Background: The general background questions collected demographic information about race/ethnicity, language spoken at home, mother's and father's level of education, reading materials in the home, homework, school attendance, which parents live at home, and which parents work outside the home.

Writing Background: Students were asked to report their instructional experiences related to writing in the classroom, including how often their teachers asked them to write more than one draft of a paper and whether or not they or their teachers saved their written work in a folder or portfolio.

Motivation: Students were asked five questions about how hard they tried on the test and about friends' attitudes toward writing.

Table 18-6 gives the number of questions per background section and notes the placement of each within student booklets.

Table 18-6
NAEP 1998 Background Sections of Student Writing Booklets

	Number of Questions	Placement in Student Booklet
Grade 4		
General Background	21	Section 3
Writing Background	17	Section 4
Motivation	5	Section 5
Grade 8		
General Background	22	Section 3
Writing Background	28	Section 4
Motivation	5	Section 5
Grade 12		
General Background	24	Section 3
Writing Background	28	Section 4
Motivation	5	Section 5

18.8.2 Language Arts Teacher Questionnaire

To supplement the information on instruction reported by students, writing teachers of the fourth- and eighth-graders participating in the NAEP writing assessment were asked to complete a questionnaire about characteristics such as their gender, teaching backgrounds, and instructional practices. The teacher questionnaire contained two parts. The first part pertained to the teachers' background and general training. The second part pertained to specific training in teaching writing and the procedures the teacher used for *each class* containing an assessed student.

The **Teacher Questionnaire, Part I: Background, Education, and Resources** (49 questions at grade 4 and 48 at grade 8) included questions pertaining to:

- gender;
- race/ethnicity;
- years of teaching experience;
- certification, degrees, major and minor fields of study;
- coursework in education;
- coursework in specific subject areas;
- amount of in-service training;
- extent of control over instructional issues; and
- availability of resources for their classroom.

This component of the questionnaire was completed by teachers whose students participated in any subject assessed in NAEP.

The **Teacher Questionnaire, Part IIA: Reading/Writing Preparation** (12 questions at grade 4 and 12 at grade 8) included questions on the teachers' exposure to various issues related to writing instruction through college or university courses or professional-development workshops.

The **Teacher Questionnaire, Part IIB: Reading/Writing Instructional Information** (84 questions at grades 4 and 85 questions at grade 8) included questions pertaining to:

- the ability level of students in the class;
- whether students were assigned to the class by ability level;
- time spent weekly on teaching writing and helping students with their writing;
- writing homework assignments;
- frequency of various instructional activities in class;
- methods of assessing student progress in writing;
- instructional emphasis given to the writing abilities covered in the assessment; and
- use of particular resources.

18.9 STUDENT BOOKLETS FOR THE 1998 WRITING ASSESSMENT

At each grade in the assessment, the 25-minute tasks were assembled into 18 booklets. At grades 8 and 12, there were 3 additional booklets containing 50-minute tasks. The assessment booklets were then spiraled and bundled. Spiraling involves interweaving the booklets in a systematic sequence so that each booklet appears an appropriate number of times in the sample. The bundles were designed so that each booklet would appear equally often in a position in a bundle.

The assembly of writing blocks (with one task per block) into booklets and their subsequent assignment to sampled students was determined by a partially balanced incomplete block (PBIB) design with spiraled administration (see Section 1.5). At each grade, the 25-minute tasks were assembled into 40 booklets such that two different blocks were assigned to each booklet and each block appeared in four booklets. Tables 18-6 through 18-8 show this configuration. At all grades, every 25-minute task appears in four booklets. This is the partially balanced part of the balanced incomplete block design. Every 50-minute task appears only in one booklet (although booklets containing the 50-minute tasks are included in the main national assessment, they cannot be assembled in the PBIB fashion).

The focused PBIB design also balances the order of presentation of the 25-minute blocks—every 25-minute block appears as the first cognitive task in two booklets and as the second cognitive task in two other booklets. This design allows for some control of context and fatigue effects.

As in the other subjects, the final step in the PBIB-spiraling procedure was the assigning of booklets to the assessed students. The students in the assessment session were assigned booklets in the order in which the booklets were bundled. Thus, most students in an assessment session received different booklets. Tables 18-7, 18-8, and 18-9 detail the configuration of booklets administered in the 1998 writing assessment.

18.10 WRITING CLASSROOM-BASED STUDY IN 1998

In 1998, NAEP conducted a special study designed to explore methods of assessing students' writing abilities by using written assignments that students had completed as part of their school curriculum. A full report on this study is due to be published in the year 2000.

Table 18-7
NAEP 1998 National and State Writing Grade 4 Booklet Configuration

Booklet Number	Question Block 1	Question Block 2	Common Core Background	Writing Background	Motivation
201	W4	W16	CW	WB	WA
202	W16	W11	CW	WB	WA
203	W11	W3	CW	WB	WA
204	W3	W18	CW	WB	WA
205	W18	W19	CW	WB	WA
206	W19	W20	CW	WB	WA
207	W20	W12	CW	WB	WA
208	W12	W7	CW	WB	WA
209	W7	W21	CW	WB	WA
210	W21	W22	CW	WB	WA
211	W22	W18	CW	WB	WA
212	W18	W14	CW	WB	WA
213	W14	W5	CW	WB	WA
214	W5	W19	CW	WB	WA
215*	W19	W17	CW	WB	WA
216	W17	W6	CW	WB	WA
217	W6	W20	CW	WB	WA
218	W20	W21	CW	WB	WA
219	W21	W15	CW	WB	WA
220	W15	W8	CW	WB	WA
221	W8	W22	CW	WB	WA
222	W22	W13	CW	WB	WA
223	W13	W9	CW	WB	WA
224	W9	W4	CW	WB	WA
225	W4	W3	CW	WB	WA
226	W3	W5	CW	WB	WA
227	W5	W6	CW	WB	WA
228	W6	W7	CW	WB	WA
229	W7	W8	CW	WB	WA
230	W8	W9	CW	WB	WA
231	W9	W10	CW	WB	WA
232	W10	W11	CW	WB	WA
233	W11	W14	CW	WB	WA
234	W14	W17	CW	WB	WA
235	W17	W12	CW	WB	WA
236	W12	W15	CW	WB	WA
237	W15	W13	CW	WB	WA
238	W13	W16	CW	WB	WA
239	W16	W10	CW	WB	WA
240	W10	W4	CW	WB	WA

* Booklet number 215 was an accommodations booklet. Accommodations booklets contain type that is larger than the type used in other booklets; they are given to participating students who have a visual disability.

Table 18-8
NAEP 1998 National and State Writing Grade 8 Booklet Configuration

Booklet Number	Question Block 1	Question Block 2	Common Core Background	Writing Background	Motivation
201	W3	W4	CW	WB	WA
202	W4	W5	CW	WB	WA
203	W5	W6	CW	WB	WA
204	W6	W7	CW	WB	WA
205	W7	W8	CW	WB	WA
206	W8	W9	CW	WB	WA
207	W9	W13	CW	WB	WA
208	W13	W19	CW	WB	WA
209*	W19	W7	CW	WB	WA
210	W7	W14	CW	WB	WA
211	W14	W21	CW	WB	WA
212	W21	W5	CW	WB	WA
213	W5	W12	CW	WB	WA
214	W12	W17	CW	WB	WA
215	W17	W23	CW	WB	WA
216	W23	W20	CW	WB	WA
217	W20	W21	CW	WB	WA
218	W21	W22	CW	WB	WA
219	W22	W19	CW	WB	WA
220	W19	W24	CW	WB	WA
221	W24	W8	CW	WB	WA
222	W8	W15	CW	WB	WA
223	W15	W22	CW	WB	WA
224	W22	W6	CW	WB	WA
225	W6	W16	CW	WB	WA
226	W16	W20	CW	WB	WA
227	W20	W4	CW	WB	WA
228	W4	W11	CW	WB	WA
229	W11	W12	CW	WB	WA
230	W12	W16	CW	WB	WA
231	W16	W14	CW	WB	WA
232	W14	W15	CW	WB	WA
233	W15	W13	CW	WB	WA
234	W13	W17	CW	WB	WA
235	W17	W11	CW	WB	WA
236	W11	W9	CW	WB	WA
237	W9	W3	CW	WB	WA
238	W3	W24	CW	WB	WA
239	W24	W23	CW	WB	WA
240	W23	W3	CW	WB	WA
241	_____	W10 [†] _____	CW	WB	WA
242	_____	W18 [†] _____	CW	WB	WA
243	_____	W25 [†] _____	CW	WB	WA

* Booklet number 209 was an accommodations booklet. Accommodations booklets contain type that is larger than the type used in other booklets; they are given to participating students who have a visual disability.

[†] Booklets containing blocks W10, W18, and W25 were booklets that contained 50-minute tasks.

Table 18-9
NAEP 1998 National and State Writing Grade 12 Booklet Configuration

Booklet Number	Question Block 1	Question Block 2	Common Core Background	Writing Background	Motivation
201	W3	W4	CW	WB	WA
202	W4	W5	CW	WB	WA
203	W5	W6	CW	WB	WA
204	W6	W7	CW	WB	WA
205	W7	W23	CW	WB	WA
206	W23	W15	CW	WB	WA
207	W15	W9	CW	WB	WA
208	W9	W10	CW	WB	WA
209	W10	W11	CW	WB	WA
210	W11	W12	CW	WB	WA
211	W12	W13	CW	WB	WA
212	W13	W14	CW	WB	WA
213	W14	W15	CW	WB	WA
214	W15	W17	CW	WB	WA
215	W17	W18	CW	WB	WA
216	W18	W19	CW	WB	WA
217	W19	W20	CW	WB	WA
218	W20	W21	CW	WB	WA
219	W21	W22	CW	WB	WA
220	W22	W23	CW	WB	WA
221	W23	W24	CW	WB	WA
222	W24	W9	CW	WB	WA
223	W9	W17	CW	WB	WA
224	W17	W24	CW	WB	WA
225	W24	W18	CW	WB	WA
226	W18	W10	CW	WB	WA
227	W10	W3	CW	WB	WA
228	W3	W19	CW	WB	WA
229	W19	W11	CW	WB	WA
230	W11	W4	CW	WB	WA
231	W4	W20	CW	WB	WA
232	W20	W12	CW	WB	WA
233	W12	W5	CW	WB	WA
234*	W5	W21	CW	WB	WA
235	W21	W13	CW	WB	WA
236	W13	W6	CW	WB	WA
237	W6	W22	CW	WB	WA
238	W22	W14	CW	WB	WA
239	W14	W7	CW	WB	WA
240	W7	W3	CW	WB	WA
241	_____	W8 [†] _____	CW	WB	WA
242	_____	W16 [†] _____	CW	WB	WA
243	_____	W25 [†] _____	CW	WB	WA

* Booklet number 234 was an accommodations booklet. Accommodations booklets contain type that is larger than the type used in other booklets; they are given to participating students who have a visual disability.

[†] Booklets containing blocks W8, W16, and W25 were booklets that contained 50-minute tasks.

Chapter 19

INTRODUCTION TO THE DATA ANALYSIS FOR THE NATIONAL AND STATE WRITING SAMPLES¹

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19.1 INTRODUCTION

This chapter gives an introduction to the analyses performed on the responses to the cognitive and background items in the 1998 assessment of writing. These analyses led to the results presented in the *NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald et al., 1999). The topics discussed in this chapter center on issues such as the description of student samples, student weights, items, assessment booklet, administrative procedures, scoring of the constructed-response items and student weights. Reasons why a formal analysis of differential item functioning (DIF) were not attempted will be presented. The major analysis components are discussed in Chapter 20 for the national assessment and Chapter 21 for the state assessment.

The objectives of the writing analyses were to prepare scale values, estimate subgroup scale score distributions for pertinent populations of students, and estimate the percent of students performing at or above various achievement-level cut points. The 1998 state assessment scales were linked to the corresponding scales from the 1998 national assessment. All analyses used data from students participating in the 1998 national and state writing assessments.

19.2 DESCRIPTION OF STUDENT SAMPLES, ITEMS, ASSESSMENT BOOKLETS, AND ADMINISTRATIVE PROCEDURES

The student samples that were administered writing items in the 1998 assessment are shown in Table 19-1. The data from the national main focused partially balanced incomplete block (PBIB) assessment of writing (4 [Writing–Main], 8 [Writing–Main], and 12 [Writing–Main]) were used for national main analyses comparing the levels of writing achievement for various subgroups of the 1998 target populations. See Section 1.5 for an explanation of the focused partially balanced incomplete block (PBIB). Chapters 3 and 4 contain descriptions of the target populations and the sample design used for the assessment. The target populations were grade 4, grade 8, and grade 12 students in the United States. Unlike previous writing NAEP assessments, only grade-defined cohorts were assessed in the 1998 NAEP. The students were sampled in the winter (January to March with final makeup sessions held from March 30 to April 3). As described in Chapter 3, the reporting sample for the national writing assessment has students with disabilities (SD) and limited English proficient students (LEP) who were included under new inclusion rules and who were given appropriate accommodations as available.

The sample designated as 8 [Writing–State] was used for the grade 8 state writing analysis. This sample included the assessment of both public- and nonpublic-school students for most jurisdictions. The procedures used were similar to those of previous state assessments.

¹ Frank Jenkins was the primary person responsible for coordinating the national writing analysis. Hua-Hua Chang and Jiahe Qian were responsible for coordinating the state writing analysis. Computing activities for all writing analyses were directed by Bruce A. Kaplan and assisted by Youn-Hee Lim. Others contributing to the analysis were David S. Freund and Katherine Pashley.

Table 19-1
*NAEP 1998 Writing Student Samples**

Sample	Booklet Number	Cohort Assessed	Time of Testing[†]	Reporting Sample Size
4 [Writing–Main]	W201–W240	Grade 4	1/5/98 – 3/27/98	19,816
8 [Writing–Main]	W201–W240	Grade 8	1/5/98 – 3/27/98	20,586
12 [Writing–Main]	W201–W237	Grade 12	1/5/98 – 3/27/98	19,505
8 [Writing–50 Min]	W241–W243	Grade 8	1/5/98 – 3/27/98	6,009
12 [Writing–50 Min]	W241–W243	Grade 12	1/5/98 – 3/27/98	5,804
8 [Writing–State]	W201–W240	Grade 8	1/5/98 – 3/27/98	97,589

* All sessions were administered in a printed format.

† Final makeup sessions were held March 30–April 3, 1998.

The major analysis components are discussed below. Some aspects of the analysis, such as procedures for item analysis, scoring of constructed-response items, and methods of scaling, are described in Chapters 9 and 12 and are therefore not detailed here. There were four major steps in the analysis of the writing data, each of which is described in a separate section:

- Conventional item and test analyses (Section 20.2)
- Item response theory (IRT) scaling (Section 20.3)
- Estimation of subgroup scale score distributions based on the plausible values methodology (Section 20.4)
- Transforming the 1998 assessment scales to the final reporting metric (Section 20.5)

Section 20.6 describes the results of partitioning the error variance, 20.7 discusses the matching of student responses to those of their teachers, and 19.6 provides a brief explanation of sampling weights. Analysis of the state writing assessment consisted of similar steps and is detailed in Chapter 21.

To set the context within which to describe the methods and results of scaling procedures, a brief review of the assessment instruments and administration procedures is provided.

The 1998 NAEP national main writing assessment differed from the long-term trend assessment in the sample age definition, the time of testing, the objectives that define the emphasis of the assessment, and the items used. It also differed from the 1992 national main NAEP writing assessment in that (1) the framework was revised, (2) most of the prompts (the exercises administered to the students) were new, and (3) for those prompts that were also administered in 1992, different rubrics (the rules for assigning scores to responses) were used to score responses. Because of these differences, equating or linking to the earlier main and the long-term trend assessments was not appropriate. The 1998 national main writing assessment can be used to start a new baseline for measuring trends in the nation.

The prompts used in the 1998 writing assessment consisted of two types of six-point constructed-response items: those allowing for a 25-minute response and those allowing for a 50-minute response. The items in the assessment were based on the curriculum framework described in *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress* (NAGB, 1996b). The 1998 framework resulted from augmenting the 1992 framework with new exercise specifications. This led to the development of new writing prompts and scoring guides. As described in the writing framework, the prompts represented three purposes of writing: narrative, informative, and persuasive. All three item types were used to measure a single scale of writing performance. Table 19-2 gives the number of 25-minute writing prompts in each grade that were used in the national main assessment. There were a

total of 20 25-minute prompts per grade in the main assessment. In grade 4, there was an emphasis on narrative items (8 of 20), whereas at grade 12 the emphasis was on persuasive prompts (8 of 20).

Table 19-2
*Number of 25-Minute Items in the National Main Writing Assessment
Within the Three Purposes of Writing*

Grade	Narrative	Informative	Persuasive	Total
4	8	7	5	20
8	7	7	6	20
12	5	7	8	20

Three 50-minute prompts were administered at grades 8 and 12, one for each purpose of writing, as shown in Table 19-3. Administering these items provided an opportunity to study how students responded to longer writing exercises that were more like regular classroom assignments. These items were not included as part of the main writing scale, however, because only one such prompt was administered per person. It was thought that a single item per person yielded too unreliable a measure of writing skill. Therefore, only 25-minute prompts were used in calculating scale score results. Data from the 50-minute prompts were not included.

Table 19-3
*Number of 50-Minute Items in the National Writing Assessment
Within the Three Purposes of Writing*

Grade	Narrative	Informative	Persuasive	Total
8	1	1	1	3
12	1	1	1	3

In the main samples, each student was administered a booklet containing two separately timed 25-minute blocks. Each block contained a single writing prompt. In addition, each student was administered a block of background questions, a block of writing-related background questions, and a block of questions concerning the student's motivation and his or her perception of the difficulty of the NAEP writing items. The background and motivational blocks were common to all writing booklets for a particular grade level. Twenty 25-minute blocks of writing prompts were administered at each grade level. As described in Chapter 18, the 25-minute blocks were combined into booklets according to a partially balanced incomplete block (PBIB) design. See Chapter 18 for more information about the blocks and booklets. In addition, the 50-minute writing prompts were given to some students at grades 8 and 12 in lieu of two 25-minute prompts. In these cases, the single prompt given a student composed the block and the book. As mentioned before, these prompts were not included in the writing scale.

Tables 19-4 through 19-6 give the correspondence between writing prompts and the respective blocks they define. As mentioned above, the 50-minute prompts were the only writing task in a book. The 25-minute prompts, however, are arranged into 40 books. Tables 19-7 through 19-9 gives the correspondence between prompts (which are also blocks) and books. It also indicates in which books a block (or item) was ordered first and in which book a block (or item) was ordered second.

Table 19-4
Grade 4: Prompt, Block, and Purpose Correspondence

Prompt	Description	Block	Purpose
W004002	Aunt Dot	W3	Narrative
W004102	Cartoon Story	W4	Narrative
W004202	Very Unusual Day	W5	Narrative
W004302	Castle	W6	Narrative
W004402	Casey and Duke	W7	Narrative
W004502	Old Tree	W8	Narrative
W004602	Secret Door	W9	Narrative
W004702	Mr. Tooms	W10	Narrative
W004802	Letter from TX8	W11	Informative
W004902	Letter from MZ3	W12	Informative
W005002	Letter from Lilex	W13	Informative
W005102	Animal Lesson	W14	Informative
W005202	City Scenes	W15	Informative
W005302	Unusual Animal	W16	Informative
W005402	Favorite Object	W17*	Informative
W005502	Invisible Friend	W18	Persuasive
W005602	Day Trip	W19*	Persuasive
W005702	Class Pet	W20	Persuasive
W005802	Library Book	W21	Persuasive
W005902	Child or Adult	W22	Persuasive

* This block appears in booklets administered to students requiring accommodations.

Table 19-5
Grade 8: Prompt, Block, and Purpose Correspondence

Prompt	Description	Block	Purpose
W006002	Cartoon Story	W3	Narrative
W006102	President for a Day	W4	Narrative
W006202	Plums	W5	Narrative
W006302	Tower	W6	Narrative
W006402	Principal for a Day	W7*	Narrative
W006502	Pioneer Journal	W8	Narrative
W006602	Space Visitor	W9	Narrative
W006702	Ancient Tree	W10 [†]	Narrative
W006802	Performance Review	W11	Informative
W006902	New Park	W12	Informative
W007002	Dream Weekend	W13	Informative
W007102	Backpack	W14	Informative
W007202	Designing a TV Show	W15	Informative
W007302	Save a Book	W16	Informative
W007402	Life's Lessons	W17	Informative
W007502	Vandalism	W18 [†]	Informative
W007602	Lengthening the School Year	W19*	Persuasive
W007702	School Schedule	W20	Persuasive
W007802	Fast Food	W21	Persuasive
W007902	Class Trip	W22	Persuasive
W008002	Driving Age	W23	Persuasive
W008102	Teens in Malls	W24	Persuasive
W008202	Student of the Year	W25 [†]	Persuasive

* This block appeared in booklets administered to students requiring accommodations.

[†] This was a 50-minute block and was not part of the main spiral.

Table 19-6
Grade 12: Prompt, Block, and Purpose Correspondence

Prompt	Description	Block	Purpose
W008302	Tall Tale	W3	Narrative
W008402	Plums	W4	Narrative
W008502	Special Object	W5*	Narrative
W008602	The Arch	W6	Narrative
W008702	Pioneer Journal	W7	Narrative
W008802	Ancient Tree	W8†	Narrative
W008902	Cafeteria	W9	Informative
W009002	Writing Mentor	W10	Informative
W009102	Movie Review	W11	Informative
W009202	Technology	W12	Informative
W009302	Handbook	W13	Informative
W009402	Save a Book	W14	Informative
W009502	Life's Lessons	W15	Informative
W009602	Vandalism	W16†	Informative
W009702	Summer Job	W17	Persuasive
W009802	Big or Small Inventions	W18	Persuasive
W009902	Work Less/Study More	W19	Persuasive
W010002	Heroes	W20	Persuasive
W010102	One Vote	W21*	Persuasive
W010202	Teens in Malls	W22	Persuasive
W010302	Driving Age	W23	Persuasive
W010402	Person of the Year	W24	Persuasive
W010502	Campaign Speech	W25†	Persuasive

* This block appeared in booklets administered to students requiring accommodations.

† This was a 50-minute block and was not part of the main spiral.

Table 19-7
Correspondence of Prompts, Blocks, and Books: Grade 4

Item	Block	Books Where Item Occurs in 1 st Position		Books Where Item Occurs in 2 nd Position	
W004002	W3	204	226	203	225
W004102	W4	201	225	224	240
W004202	W5	214	227	213	226
W004302	W6	217	228	216	227
W004402	W7	209	229	208	228
W004502	W8	221	230	220	229
W004602	W9	224	231	223	230
W004702	W10	232	240	231	239
W004802	W11	203	233	202	232
W004902	W12	208	236	207	235
W005002	W13	223	238	222	237
W005102	W14	213	234	212	233
W005202	W15	220	237	219	236
W005302	W16	202	239	201	238
W005402	W17	216	235	215	234
W005502	W18	205	212	204	211
W005602	W19	206	215	205	214
W005702	W20	207	218	206	217
W005802	W21	210	219	209	218
W005902	W22	211	222	210	221

Table 19-8
Correspondence of Prompts, Blocks, and Books: Grade 8

Item	Block	Books Where Item Occurs in 1 st Position		Books Where Item Occurs in 2 nd Position	
W006002	W3	201	238	237	240
W006102	W4	202	228	201	227
W006202	W5	203	213	202	212
W006302	W6	204	225	203	224
W006402	W7	205	210	204	209
W006502	W8	206	222	205	221
W006602	W9	207	237	206	236
W006702	W10*	241	—	—	—
W006802	W11	229	236	228	235
W006902	W12	214	230	213	229
W007002	W13	208	234	207	233
W007102	W14	211	232	210	231
W007202	W15	223	233	222	232
W007302	W16	226	231	225	230
W007402	W17	215	235	214	234
W007502	W18*	242	—	—	—
W007602	W19	209	220	208	219
W007702	W20	217	227	216	226
W007802	W21	212	218	211	217
W007902	W22	219	224	218	223
W008002	W23	216	240	215	239
W008102	W24	221	239	220	238
W008202	W25*	243	—	—	—

* Booklets containing 50-minute blocks included only one block.

Table 19-9
Correspondence of Prompts, Blocks, and Books: Grade 12

Item	Block	Books Where Item Occurs in 1 st Position		Books Where Item Occurs in 2 nd Position	
W008302	W1	201	228	227	240
W008402	W2	202	231	201	230
W008502	W3	203	234	202	233
W008602	W4	204	237	203	236
W008702	W5	205	240	204	239
W008802	W6*	241	—	—	—
W008902	W7	208	223	207	222
W009002	W8	209	227	208	226
W009102	W9	210	230	209	229
W009202	W10	211	233	210	232
W009302	W11	212	236	211	235
W009402	W12	213	239	212	238
W009502	W13	207	214	206	213
W009602	W14*	242	—	—	—
W009702	W15	215	224	214	223
W009802	W16	216	226	215	225
W009902	W17	217	229	216	228
W010002	W18	218	232	217	231
W010102	W19	219	235	218	234
W010202	W20	220	238	219	237
W010302	W21	206	221	205	220
W010402	W22	222	225	221	224
W010502	W23*	243	—	—	—

* Booklets containing 50-minute blocks included only one block.

Some writing prompts were common with the 1992 assessment. However, because the scoring rubrics differed from those used in the 1992 assessment, all items were treated as if they were new. As a result, there was no trend with the 1992 assessment. Also, there was no overlap of items across grades. Thus, a separate writing scale was defined for each grade.

19.3 SCORING CONSTRUCTED-RESPONSE ITEMS

Responses to each writing prompt were scored holistically using a six-category rubric. The six categories defined six levels of partial credit and are referred to by the following descriptors:

- 0 = Unsatisfactory
- 1 = Insufficient Response
- 2 = Uneven Response
- 3 = Sufficient Response
- 4 = Skillful Response
- 5 = Excellent Response

“Missing” responses (students did not write a response to the task, or provided an off-task response) were treated as if the item had not been presented to the student (see Section 12.3.1 or Mislevy & Wu [1988]).

Teams of trained raters scored the written student responses according to scoring guides that defined particular features for the score points appropriate to the grade and purpose of writing. This means that there were nine scoring guides: one for narrative, informative, and persuasive purposes for each grade. See the upcoming *NAEP 1998 Writing Report Card for the Nation and the States* (Greenwald et al., 1999) for details of the scoring rubrics.

In order to determine interrater reliability of scoring, a percentage of responses was scored twice: for the 25-minute prompts, 25 percent of the responses at grades 4 and 12, and 10 percent of the responses at grade 8 (the only grade at which the state-by-state assessment was given) were scored by two raters. In addition, 25 percent of responses to the 50-minute prompts were scored by a second rater.

For the national and state writing assessments, approximately 370,000 responses to writing prompts were scored. This number includes rescoring to monitor interrater reliability. The average within-year percentages of agreement on the six-level scale for the 1998 reliability samples were 77 percent at grade 4, 71 percent at grade 8, and 74 percent at grade 12. The reliabilities for each writing prompt can be found in Appendix C.

19.4 DIFFERENTIAL ITEM FUNCTIONING

A differential item functioning (DIF) analysis is customarily done to identify potentially biased items. In standard DIF analyses such as Mantel-Haenszel and SIBTEST, it is well established that a moderately long matching test is required for the procedures to be valid (i.e., identify DIF in items unconfounded by other irrelevant factors [e.g., Donoghue, Holland, & Thayer, 1993]). In the 1998 NAEP writing assessment, the booklets contain two 25-minute blocks, with one writing prompt per block. Thus, each examinee has (at most) two responses on six-category prompts. This is too little information for the test statistics associated with Mantel (1963) or SIBTEST (Shealy & Stout, 1993) procedures to function effectively. Thus, standard DIF approaches based on statistical tests of items are likely to function poorly, and so were not used in the 1998 writing assessment.

In the writing assessment the standardization method of Dorans and Kulick (1986) was used to produce descriptive statistics. The matching variable was the total score on the booklet (see Section 9.3.4). As in other NAEP DIF analyses, the statistics were computed based on pooled booklet matching; the results are accumulated over the booklets in which a given item appears (e.g., Allen & Donoghue, 1996). This analysis was accomplished using the standard NAEP DIF program NDIF. The statistic of interest appears under the label SMD for "standardized mean DIF." (First, differences in the item score between the two comparison groups are calculated for each level of the booklet score. Then, the standardized mean DIF for the item is the average of these differences divided by their standard deviation.

Significance testing was not performed, due to the low reliability of the matching variable. Instead, the standardized mean difference values were used descriptively, to identify those items that demonstrate the most evidence of DIF. A rough criterion used in the past to describe DIF for polytomous items has been to create the ratio of the SMD to the item's standard deviation and flag any item with a ratio of at least .25. In the writing data no items approached that level. If, as a rule of thumb we use as a criterion for flagging DIF, that the absolute SMD was at least .1, six prompts are flagged. These are listed in Table 19-10. This ad hoc descriptive analysis of DIF did not lead to the rejection of any items as biased.

Table 19-10
Items With Absolute SMD (Standardized Mean DIF) > .10

Group	Grade	SMD	ID
NonAcc/Acc	4	-.106	W005402
B/W	4	-.108	W005302
B/W	12	-.129	W009802
B/W	12	.127	W010402
H/W	4	-.101	W004602
H/W	12	-.112	W009202

LEGEND

NonAcc/Acc Nonaccommodated versus accommodated students
 B/W Black versus White students
 H/W Hispanic versus White students

Tables A-6 and A-8 in Appendix A provide sample sizes for each of the race/ethnicity and accommodated/nonaccommodated groups noted in the table above.

ETS NAEP staff examined these items, although no formal DIF committee for writing was convened. As a result of this informal analysis of DIF it was decided that there was insufficient evidence of DIF to delete any items. It should be noted that this descriptive procedure was not a formal DIF analysis. Since there were only two items per book, standard DIF procedures were not appropriate. The descriptive procedure used (standardized mean DIF) did not rule out the possibility of DIF in writing items.

19.5 50-MINUTE WRITING STUDY

It was previously mentioned that there were three 50-minute writing prompts at grade 8 as well as grade 12. For those assigned such prompts, the writing portion of the book consisted of the single 50-minute prompt. Response to these items were not put on the main writing scale. The single response per student was thought to yield inadequate information about students' writing abilities to put their scores on the writing scale. The 50-minute prompts were administered in order to provide a writing experience that more closely reflects actual classroom assignment. It was also an attempt to see if students would do more pre-writing (e.g., outlining) if given more time. Indeed, as the result of an analysis of pre-writing behavior, it was determined that there was more pre-writing with the 50-minute prompts. Details of the responses to 50-minute prompts will be given in the item release materials.

19.6 THE WEIGHT FILES

The sampling contractor Westat produced the final student and school weights and the corresponding replicate weights for the 1998 writing assessment. Information for the creation of the weight files was supplied by NCS under the direction of ETS. Details of the general weighting scheme for the 1998 assessments is given in Chapters 10 and 11. Some features of the weighting procedure peculiar to the 1998 writing assessment will be discussed here.

Students designated as SD or LEP were included in the assessment under new inclusion rules. SD and LEP students who customarily received accommodations were offered those same accommodations in NAEP (i.e., writing used an S3 sample only). At each grade, all accommodated

students took the same booklet, which consisted of two 25-minute blocks. The weighting of accommodated students was handled somewhat differently in different phases of the analysis.

The first stage of a NAEP analysis is an item analysis (IA), which yields information such as item-level frequencies, item means, and item-to-block score correlations. For the IA, the weights were normalized so that the sum of the weights equaled the sample size of the reporting sample (all students taking 25-minute items).

In order to understand the effect that the accommodated students had on the responses for the two items in the “accommodation” book, the item analysis was run three ways:

1. With accommodated students deleted. In this way the responses to items in the “accommodated” book were directly comparable with the responses to other items.
2. With the accommodated students included and using the weights provided by Westat. When compared with the first IA analysis, this showed the full effect that accommodated students had on item responses.
3. Finally, IA was run with accommodated students included, but weighted down by a factor of 4/40. This showed the effect accommodated students would have on items, if the responses for those items were a representative sample from the population. The 4/40 factor was derived from the fact that there are 40 booklets and each item appears in 4 booklets. If evenly distributed, only 4/40s of the entire sample takes each item.

The two items in the accommodated book are “downweighted” in the final IA analysis because there were more accommodated students taking these items than would be expected from a simple random sample. This is because all accommodated students initially assigned to other books were reassigned to the accommodated book. The 4/40 factor comes from the fact that there are 40 books funneling accommodated students into this one book, but an item occurs in 4 books. So we downweight by 1/40 and weight up by 4, which is the same as weighting by 4/40.

The “downweighting” of the accommodated students was also used in the IRT scaling analysis.

For estimation of imputed values (using NSWEEP and CGROUP, see Section 20.4), the accommodated students were not downweighted and the weights were used as they were provided by Westat, as they were in the second IA analysis mentioned above. This was done to assure that statistics based on weighted proficiencies would be representative of the entire population.

Chapter 20

DATA ANALYSIS FOR THE NATIONAL WRITING SAMPLES¹

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Educational Testing Service

20.1 INTRODUCTION

The purpose of the national writing analysis was to produce estimates of subgroup means and standard deviations on the 1998 writing achievement scale and to estimate the percentage of students scoring within each of the achievement level ranges (basic, proficient and advanced) as defined by the National Assessment Governing Board (NAGB) achievement level cut points. To accomplish these goals, data from the 1998 national writing assessment was analyzed through the stages detailed in the following sections. Standard item analyses (e.g., estimation of item means) were performed. Next, an IRT scaling was done to create a writing achievement scale at each grade. Third, estimated (plausible) values on a latent writing trait were estimated in order to get unbiased estimates of subgroup achievement distributions, and finally estimates were put in a convenient metric to facilitate interpretation and prevent confusion with other assessments.

20.2 NATIONAL ITEM ANALYSIS

This section contains a detailed description of the conventional item analysis performed on the writing data. Since there was only one item per block, this analysis could not be done within block as is usual in NAEP assessments. Item to total correlations are meaningless with one item per block. Instead, item analysis was run within grade as if all twenty 25-minute blocks (items) came from one large block. Frequencies of responses at each score point and item averages were the only meaningful statistics that could be reported. Tables 20-1 through 20-3 give the item statistics for the 25-minute items in the three grades. These tables show the number of students taking each item, the percentage of those taking the item that scored in each category, the overall average item score, the average score for the item when it appeared first in a booklet and the average item score when it appeared second in a booklet. The means by block order show a small but consistent order effect advantaging the item when it is in the first position. Fortunately, order effects were balanced over all subsamples through the partially balanced incomplete block (PBIB) design for assigning blocks to books. Books were then assigned to students through a spiral procedure, which results in an equivalent sample of students being assigned to each book (see Chapter 9, Section 9.2). The item means do not vary greatly, ranging from 3.3 to 4.0 at grade 4, 3.4 to 3.9 at grade 8, and 3.3 to 4.2 at grade 12. The reader is cautioned that average item means cannot be compared across grades since there is not a cross-grade scale.

¹ Frank Jenkins was the primary person responsible for the coordination of the National writing analysis. Computing activities for all writing analyses were directed by Bruce A. Kaplan and assisted by Youn-Hee Lim. Others contributing to the analysis were David S. Freund and Katherine E. Pashley.

Table 20-1
Descriptive Statistics for 25-Minute Writing Prompts: Grade 4

Item ID	Description	n	Percentage of Students in Each Category							Total Item Mean	1 st Position Item Mean	2 nd Position Item Mean
			Missing	0	1	2	3	4	5			
W004002	Aunt Dot	1,680	8.6	1.3	8.8	34.5	40.4	10.0	5.1	3.64	3.67	3.62
W004102	Cartoon Story	1,805	5.6	3.0	17.0	42.9	24.1	10.8	2.2	3.29	3.36	3.23
W004202	Very Unusual Day	1,698	10.8	4.9	12.8	36.2	28.3	13.9	3.9	3.45	3.49	3.42
W004302	Castle	1,730	8.5	2.0	12.1	30.7	38.4	14.0	2.8	3.59	3.65	3.53
W004402	Casey And Duke	1,831	3.2	1.9	6.7	22.8	43.2	20.9	4.4	3.88	3.96	3.80
W004502	Old Tree	1,740	8.3	2.4	7.8	21.3	47.6	16.9	4.0	3.81	3.82	3.80
W004602	Secret Door	1,733	8.3	1.1	6.0	19.4	44.0	23.0	6.5	4.01	4.05	3.98
W004702	Mr. Tooms	1,740	8.3	3.3	7.1	22.7	41.8	20.6	4.5	3.83	3.87	3.80
W004802	Letter from TX8	1,791	3.5	6.4	11.6	36.2	29.8	12.6	3.3	3.40	3.42	3.39
W004902	Letter from MZ3	1,841	4.2	4.4	8.3	45.5	32.6	7.9	1.4	3.36	3.38	3.33
W005002	Letter from Lilex	1,846	3.3	4.1	14.7	43.2	29.2	7.9	1.0	3.25	3.30	3.21
W005102	Animal Lesson	1,893	2.2	1.4	7.9	31.1	47.4	10.5	1.7	3.63	3.68	3.58
W005202	City Scenes	1,747	7.5	4.4	13.7	36.9	35.9	7.8	1.4	3.33	3.39	3.28
W005302	Unusual Animal	1,848	2.9	1.7	5.3	38.3	42.7	9.3	2.8	3.61	3.65	3.57
W005402	Favorite Object	1,827	7.9	1.7	8.7	37.5	41.0	9.4	1.7	3.53	3.59	3.48
W005502	Invisible Friend	1,746	6.3	1.8	8.1	25.2	46.9	15.2	2.8	3.74	3.80	3.68
W005602	Day Trip	1,790	6.9	5.5	13.5	28.3	39.0	11.4	2.3	3.44	3.59	3.29
W005702	Class Pet	1,712	8.4	4.6	9.9	30.0	43.6	9.1	2.7	3.51	3.53	3.49
W005802	Library Book	1,721	7.8	2.8	7.9	31.7	48.2	7.6	1.7	3.55	3.60	3.50
W005902	Child or Adult	1,721	8.6	4.6	7.5	33.7	44.1	9.0	1.1	3.49	3.54	3.44
Average		1,772								3.57	3.62	3.52

LEGEND

n = Unweighted sample size 3 = Sufficient
0 = Unsatisfactory 4 = Skilled
1 = Insufficient 5 = Excellent
2 = Uneven

Table 20-2
Descriptive Statistics for 25-Minute Writing Prompts: Grade 8

Item ID	Description	n	Percentage of Students in Each Category							Total Item Mean	1 st Position Item Mean	2 nd Position Item Mean
			Missing	0	1	2	3	4	5			
W006002	Cartoon Story	1,940	3.3	1.4	13.4	29.7	33.6	16.1	5.9	3.67	3.78	3.56
W006102	President For a Day	1,943	2.3	1.2	12.6	31.0	37.6	12.7	4.8	3.62	3.73	3.52
W006202	Plums	1,988	2.3	2.0	16.2	34.1	32.6	11.7	3.3	3.46	3.57	3.34
W006302	Tower	1,932	1.5	6.0	6.4	21.2	39.3	23.1	4.0	3.79	3.84	3.74
W006402	Principal For a Day	1,921	2.6	3.3	9.3	20.5	39.4	20.4	7.2	3.86	3.97	3.75
W006502	Pioneer Journal	1,935	2.5	1.4	6.9	21.3	46.6	21.5	2.4	3.87	3.96	3.78
W006602	Space Visitor	1,928	3.0	1.5	11.0	20.8	46.2	15.2	5.4	3.79	3.91	3.67
W006802	Performance Review	1,927	2.3	1.4	8.5	30.9	42.4	13.8	3.1	3.68	3.77	3.60
W006902	New Park	1,971	2.1	1.8	8.6	28.1	51.2	8.7	1.6	3.62	3.68	3.55
W007002	Dream Weekend	1,950	1.7	1.8	7.5	26.6	50.3	10.4	3.4	3.70	3.81	3.60
W007102	Backpack	1,936	1.6	2.7	6.4	24.5	49.1	15.2	2.1	3.74	3.79	3.69
W007202	Designing a TV Show	1,929	2.3	3.2	12.7	39.9	33.8	8.5	1.8	3.37	3.44	3.31
W007302	Save a Book	1,915	3.7	4.0	9.4	29.4	47.3	7.1	2.8	3.53	3.68	3.37
W007402	Life's Lessons	1,964	2.2	3.2	8.1	25.8	43.6	15.5	3.9	3.72	3.88	3.56
W007602	Lengthening School Year	1,949	1.8	4.0	9.6	34.1	35.2	14.0	3.0	3.55	3.64	3.45
W007702	School Schedule	1,921	2.3	3.6	11.6	33.8	40.2	9.5	1.3	3.44	3.54	3.36
W007802	Fast Food	1,976	1.2	5.2	9.4	28.3	38.5	15.3	3.3	3.59	3.71	3.47
W007902	Class Trip	1,940	1.9	2.4	8.6	35.9	43.8	6.7	2.5	3.51	3.59	3.44
W008002	Driving Age	1,969	2.5	1.8	11.2	34.2	40.8	10.4	1.7	3.52	3.59	3.44
W008102	Teens in Malls	1,966	1.8	4.7	10.6	24.3	42.4	15.3	2.7	3.61	3.69	3.54
Average		1,945								3.63	3.73	3.54

LEGEND

n = Unweighted sample size
 0 = Unsatisfactory
 1 = Insufficient
 2 = Uneven
 3 = Sufficient
 4 = Skilled
 5 = Excellent

Table 20-3
Descriptive Statistics for 25-Minute Writing Prompts: Grade 12

Item ID	Description	n	Percentage of Students in Each Category							Total Item Mean	1 st Position Item Mean	2 nd Position Item Mean
			Missing	0	1	2	3	4	5			
W008302	Tall Tale	1,838	3.0	6.7	3.6	17.3	49.1	21.6	1.8	3.81	3.87	3.74
W008402	Plums	1,863	3.5	3.1	3.9	11.9	44.5	34.8	1.8	4.10	4.15	4.04
W008502	Special Object	1,889	3.2	1.2	4.3	14.2	36.7	42.0	1.7	4.19	4.28	4.09
W008602	The Arch	1,945	1.8	0.3	4.0	18.0	49.2	26.6	2.0	4.04	4.11	3.97
W008702	Pioneer Journal	1,932	2.0	0.8	6.7	21.5	45.7	21.0	4.3	3.92	4.03	3.81
W008902	Cafeteria	1,878	2.7	0.5	4.3	13.8	46.6	29.9	4.9	4.16	4.23	4.08
W009002	Writing Mentor	1,841	2.4	3.0	4.3	21.4	40.3	25.5	5.4	3.97	4.13	3.83
W009102	Movie Review	1,761	5.1	2.1	7.0	19.7	53.3	13.1	4.8	3.83	3.92	3.73
W009202	Technology	1,815	3.1	3.2	7.8	18.1	38.8	30.3	1.8	3.90	3.98	3.82
W009302	Handbook	1,850	2.5	2.0	5.9	14.5	39.4	26.8	11.5	4.17	4.31	4.04
W009402	Save a Book	1,826	3.1	4.3	8.9	19.6	39.7	25.8	1.6	3.79	3.92	3.64
W009502	Life's Lessons	1,805	5.2	3.5	6.2	14.3	44.8	27.2	4.1	3.98	4.07	3.89
W009702	Summer Job	1,892	2.3	3.2	8.5	28.1	39.3	16.3	4.5	3.70	3.76	3.65
W009802	Big or Small Inventions	1,874	2.9	2.9	8.5	18.3	48.5	15.8	5.9	3.84	3.88	3.79
W009902	Work Less/Study More	1,842	2.0	3.7	9.9	26.1	43.6	10.9	5.7	3.65	3.73	3.57
W010002	Heroes	1,884	2.3	2.3	8.5	17.2	45.7	21.4	4.9	3.90	4.00	3.80
W010102	One Vote	1,892	2.2	4.2	21.3	30.1	31.8	10.1	2.6	3.30	3.40	3.20
W010202	Teens in Malls	1,876	2.5	3.3	9.7	23.6	41.0	18.0	4.4	3.74	3.84	3.63
W010302	Driving Age	1,907	2.6	3.4	11.9	24.6	36.9	18.1	5.1	3.70	3.82	3.58
W010402	Person of the Year	1,882	2.5	2.3	7.0	21.7	37.1	22.3	9.6	3.99	4.11	3.87
Average		1,865								3.88	3.98	3.79

LEGEND

n = Unweighted sample size	3 = Sufficient
0 = Unsatisfactory	4 = Skilled
1 = Insufficient	5 = Excellent
2 = Uneven	

A few details about the tables need to be explained. Item means were calculated using weights. The denominator for calculating means and percents in responses 1 through 6 were the weighted total number giving legitimate responses (1 through 6). “Missing” responses (i.e., students did not write a response to the task, or provided an off-task response) were treated as “not presented,” (i.e., were not given a score and were not used in IRT calibration [see Section 12.3.1 or Mislevy & Wu, 1988]). The denominator for calculating percent missing was the sum of total missing and legitimate responses for the item. The column labeled “n” in the tables shows the unweighted number of students presented with the item who gave a legitimate response. In order to facilitate comparisons among items, the accommodated students were not included in these item analysis tables. At each grade, accommodated students were given the same two items and including this data would make the responses on these two items noncomparable to responses of other items.

20.3 ITEM RESPONSE THEORY (IRT) SCALING

In 1993, the National Assessment Governing Board (NAGB) determined that future NAEP assessments should be developed using within-grade frameworks. Within-grade scaling removes the constraint that the trait being measured is cumulative across the grade levels of the assessment. It also means that there is no need for overlap items across grades. Consistent with this view, NAGB also declared that scaling be performed within-grade. Any items that happened to be the same across grades in the assessment were scaled separately for each grade, thus making it possible for common items to function differently in the separate grades. Therefore, the writing framework specifies that the 1998 writing assessment be developed within-grade. Likewise, all IRT scaling was performed within-grade. Within each grade, a single writing scale was defined that summarizes student performance on the 25-minute items.

20.3.1 Item Parameter Estimation

Item parameter estimates were obtained for the univariate writing achievement scale by using the NAEP BILOG/PARSCALE program, which combines Mislevy and Bock’s (1982) BILOG and Muraki and Bock’s (1991) PARSCALE computer programs. The program uses marginal estimation procedures to estimate the parameters of the one-, two-, and three-parameter logistic models, and the generalized partial-credit model described by Muraki (1992) (see Chapter 12). In the writing assessment, only the partial-credit model was used. Although only two prompts are present in any booklet, each booklet is administered to a randomly equivalent sample of students by employing a spiral procedure of assigning books to students (see Section 20.2).

The accommodated students were weighted down in the scaling analysis. This is because all accommodated students were assigned to the same book. With 40 books and each item occurring in 4 books, this implies that accommodated students were oversampled for these items by a factor of 40/4, (i.e., there were 10 times too many accommodated students). As a result, the accommodated students were weighted down by a factor of 4/40 (1/10) to make their influence on the items the same as would occur in a representative sample. As with the item analysis, weights were normalized (multiplied by a constant) so that the sum of the weights was equal to the sample size.

BILOG/PARSCALE was run with model assumptions to more accurately account for the influence of accommodated students. Two subgroups were defined, one for accommodated and the other for nonaccommodated students. Separate prior achievement scale distributions were estimated for the two subgroups. The subgroup priors were defined as normal with combined mean equal to zero and the combined standard deviation equal to one. The means and standard deviations of the subsamples were

free to vary. As it turned out, the accommodated group mean was always lower than the nonaccommodated group, and the subgroup variances were less than one. The scale was transformed to the reporting metric with an overall mean of 150 and overall standard deviation of 35, in a later stage of the analysis (see Section 20.5).

As with the item analysis, “missing” responses (i.e., students did not reach the task, or provided an off-task response) were treated as “not presented,” (i.e., were not given a score and were not used in IRT calibration).

Empirical Bayes modal estimates of all item parameters were obtained from the BILOG/PARSCALE program. Prior distributions were imposed on item parameters with the following starting values: thresholds (normal [0,2]); slopes (log-normal [0,.5]); and asymptotes (two-parameter beta with parameter values determined as functions of the number of response options for an item and a weight factor of 50). The locations (but not the dispersions) of the item parameter prior distributions were updated at each program-estimation cycle in accordance with provisional estimates of the item parameters. Starting values were computed from item statistics. Item parameters are listed in Appendix E.

20.3.2 Evaluation of Model Fit

During and subsequent to item parameter estimation, an evaluation of the fit of the IRT models was carried out for each of the items in the item pool. These evaluations were conducted to determine if any items had to be dropped or have categories collapsed. Evaluations of model fit were based primarily on graphical analyses. The 6-category polytomous items are depicted by graphs that display response curves for each item category (see Chapter 12). The model-based (theoretical) item category curves were compared with empirical response plots derived from the observed responses. An item’s fit was assessed by comparing the theoretical curves with the empirical ones. The closer they coincide, the better the fit.

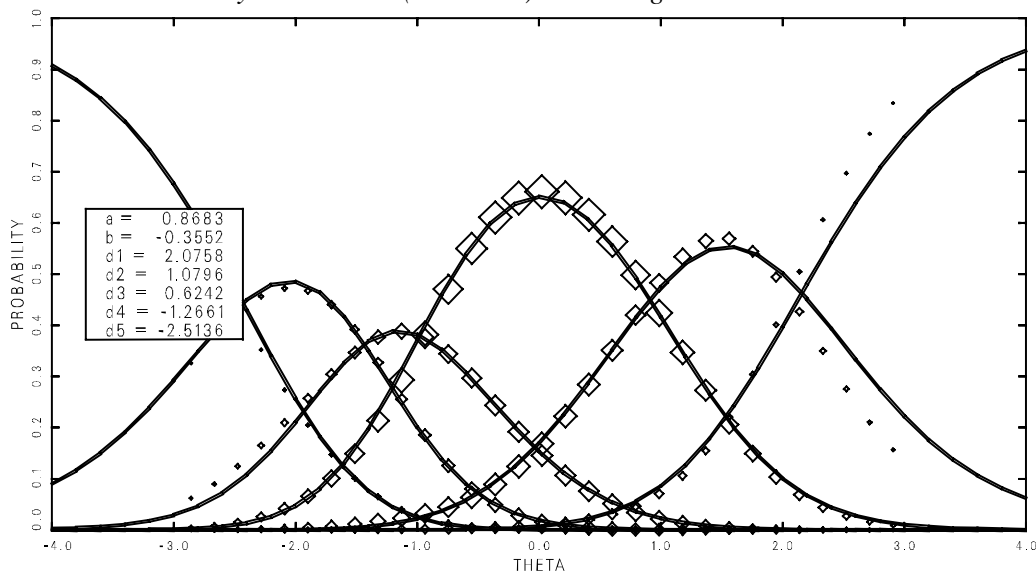
As with most procedures that involve evaluating plots of data versus model predictions, a certain degree of subjectivity was involved in determining the degree of fit necessary to justify use of the model. The seemingly objective procedures of assessing model fit based on goodness-of-fit indices such as the “pseudo chi-squares” produced in BILOG (Mislevy & Bock, 1982) cannot be used as an absolute gauge of fit. The exact sampling distributions of these indices when the model fits are not well understood, even for fairly long tests. Mislevy and Stocking (1989) point out that the usefulness of these indices appears particularly limited in situations like NAEP, where examinees have been administered relatively short tests. A study by Stone, Mislevy, and Mazzeo (1994) using simulated data suggests that the correct reference chi-square distributions for these indices have considerably fewer degrees of freedom than the value indicated by the BILOG/PARSCALE program and require additional adjustments of scale. However, it is not yet clear how to estimate the correct number of degrees of freedom and necessary scale factor adjustment factors. Consequently, pseudo chi-square goodness-of-fit indices were used only as rough guides in interpreting the severity of model departures.

In the case of the writing assessment, there was not much information with which to evaluate model fit. Since there were only, at most, two items administered to each respondent, about half of the achievement scale was determined by the item being evaluated for fit. The IRT model fits well if higher levels of the scale are associated with higher score levels on an item. Since much of a person’s scale score was determined by the item in question, items almost always fit. Without an independent measure of achievement, with only two items per person, item fit will usually be (trivially) good.

As expected, the fit of the model to the item responses was good for all items. Figure 20-1 provides an example of a particularly good-fitting item. In the plot, the y-axis indicates the probability of a correct response and the x-axis indicates scale score level (θ). The diamonds show empirical

estimates of item category responses. The sizes of the diamonds are proportional to the estimated sample size at the indicated value. The solid curve shows the estimated theoretical item response function. The item response function provides estimates of the probability of a correct response at each scale point (θ) when a logistic response function is assumed.² Also shown in the plot are the values of the item parameter estimates (in the box on the left side). As is evident from the plot, the empirical item category traces are in extremely close agreement with the model-based item response function curves.

Figure 20-1
*Polytomous Item (W010002) Exhibiting Good Model Fit**



* Diamonds represent 1998 grade 12 writing assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

Figure 20-2 shows an item with poorer fit. This is especially true for the lower end of the achievement distribution, where the empirical plots for two category functions (diamonds) are quite far from the theoretical item category function (solid line). Fortunately, this misfit represents a very small portion of the respondents, as is evidenced by the small size of the diamonds. This is the poorest fitting item even though the figure shows quite good fit. As a result, it was not necessary to delete or collapse categories for any items to improve the fit of the model.

20.4 GENERATION OF PLAUSIBLE VALUES

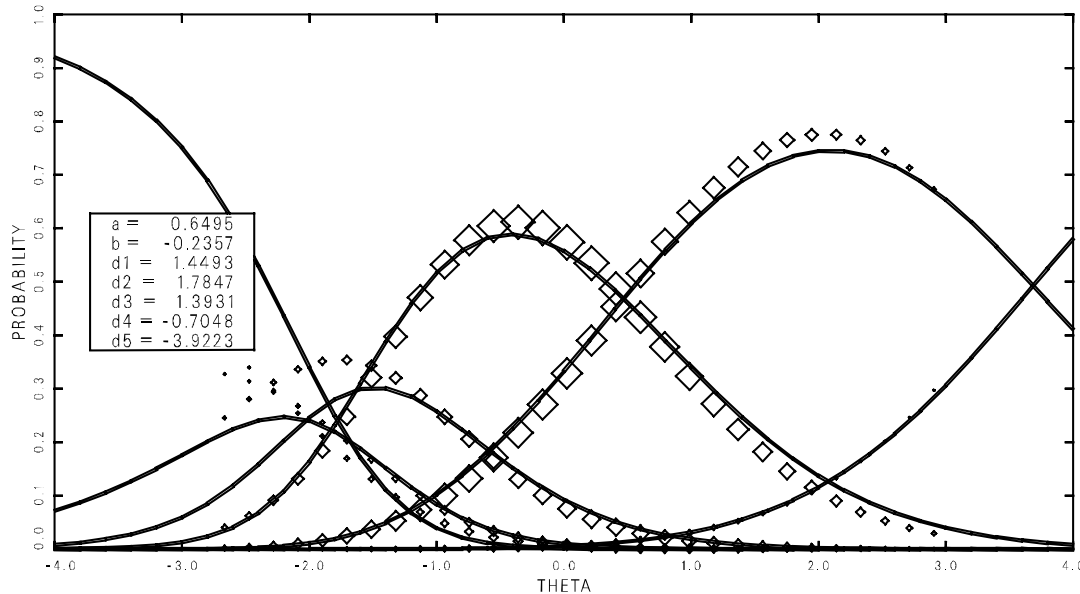
20.4.1 Principal Components (NSWEEP Program)

Univariate plausible values were generated for each sample using the univariate conditioning program BGROUP as written by Thomas (1993b). This procedure employed student weights. Prior to the 1990 assessment, selected background variables were used for conditioning. However, from 1990 to the present, principal components of the background variables have been used as conditioning variables. Almost all of the background variables were coded as 0-1 contrasts, so no standardization took place.

² Note that in the generalized partial-credit model, the displayed theoretical curves are not logistic. Rather, logistic curves represent the conditional probabilities given adjacent values, so that
$$P(x=k|x=(k-1) \text{ or } x=k, \theta) = \frac{P(x=k|\theta)}{P(x=(k-1)|\theta) + P(x=k|\theta)}$$
 is logistic.

Principal components of these contrasts were employed to remedy problems of extreme collinearity among some of the original conditioning variables. The principal components used accounted for at least 90 percent of the variance of the original conditioning variables.

Figure 20-2
*Polytomous Item (W008402) Exhibiting Less Than Optimal Model Fit**



* Diamonds represent 1998 grade 12 writing assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

Results from research on the 1990 trial state assessment in mathematics suggests that using a large subset of principal components will yield estimates that differ only slightly from those obtained using the full set (Mazzeo et al., 1992). Table 20-4 contains a list of the number of principal components included in conditioning, as well as the proportion of variance accounted for by the conditioning model for each grade.

Table 20-4
*Proportion of Scale Score Variance Accounted for by the Conditioning Model
 for the 1998 National Main Writing Assessment*

Grade	Number of Conditioning Contrasts*	Number of Principal Components*	Proportion of Scale Score Variance Accounted For
4	1,095	416	.53
8	1,123	405	.62
12	633	255	.59

* Excluding the constant term

20.4.2 Conditioning (BGROUP Program)

The codings of the original writing-specific conditioning variables, before principal components were calculated, are presented in Appendix F. NAEP BGROUP (described in Chapter 12) creates posterior distributions of scale scores by combining information from item responses of individuals and information from linear regression of scale score on conditioning variables. For each individual, five plausible values were randomly drawn from their posterior scale distribution.

The values of the conditioning effects were expressed in the metrics of the original calibration scale. Definitions of derived conditioning variables are given in Appendix G.

20.5 FINAL REPORTING SCALES

Like all IRT scales, the writing scales have a linear indeterminacy that may be resolved by an arbitrary choice of origin and unit size. The 1998 writing assessment was developed using a new definition of the content domain of the items (see Section 18.2). Because it was not appropriate to compare results from the 1998 assessment with those of previous NAEP writing assessments, no attempt was made to link or align scores on the new assessment to those of previous assessments. Therefore, it was necessary to establish a new scale for reporting. The NAGB has decided that all NAEP scales will be defined within-grade. As a result, the univariate writing achievement scales at each grade were transformed to a reporting metric with scale points ranging from 0 to 300, with an overall mean of 150 and with a standard deviation of 35. Because of the arbitrary nature of the metric, cross-grade comparisons are meaningless.

At each grade the writing scale was transformed from the original scaling metric (mean 0, SD=1) to the reporting metric (mean 150, SD=35) using the transformation:

$$\theta_{reporting} = A \cdot \theta_{scaling} + B.$$

with $\theta_{scaling}$ being the scale score in the scaling metric (approximately mean=0, SD=1), and $\theta_{reporting}$ being the scale the scale score in the reporting metric (mean=150, SD=35). Calculation of the constants for this linear transformation, "A" and "B", is described in Chapter 9. These linear transformation constants are given for each grade in Table 20-5. As previously mentioned, the scaling metric is roughly standardized with mean about 0 and standard deviation about 1 and the scale score metric has mean 150 and standard deviation 35. As a result, one would expect all A's to be 35 and all B's to be 150. As Table 20-5 shows, this is not the case. The reason is that accommodated students were weighted differently in the scaling and conditioning phases of analysis.

Table 20-5
*Coefficients of Linear Transformations of the Writing Scales
from the Scaling Metric to the Reporting Metric*

Sample	A	B
Grade 4	34.01	152.24
Grade 8	34.06	151.50
Grade 12	34.54	151.11

20.6 PARTITIONING OF THE ESTIMATION ERROR VARIANCE

For each grade, the error variance of the final, transformed scale mean was partitioned as described in Chapter 12. The variance was partitioned into two parts: the proportion of error variance due to sampling students (sampling variance) and the proportion of variance due to the fact that the scale score, θ , is a latent variable that was estimated rather than observed. Table 20-6 contains estimates of the total error variance, the proportion due to sampling of students, and the proportion due to the latent nature of scale scores. To get greater stability of the variance estimates, they are based on drawing 100 imputations from the posterior achievement distribution of each student. More detailed information of proportion of variance by gender and race/ethnicity is presented in Appendix H.

Table 20-6
*Estimation Error Variance and Related Coefficients
for the National Main Writing Assessment*

Grade	Proportion of Variance Due to . . .	
	Student Sampling	Latency of θ
4	.90	.10
8	.94	.06
12	.93	.07

20.7 WRITING TEACHER QUESTIONNAIRES

Teachers of fourth- and eighth-grade students were surveyed about their educational background and teaching practices. Each student's records were matched with his or her teacher's survey information. Variables derived from the questionnaire were used in the conditioning models, along with a variable that indicated whether a student record had been matched with a teacher record, which controls estimates of subgroup means for differences that exist between the matching and nonmatching students. Of the 19,816 fourth-grade students in the sample, 89 percent were matched with both parts of the teacher questionnaire and 4 percent were matched with only the first, teacher background, part of the questionnaire. Of the 20,586 eighth-grade students sampled, 72 percent were matched with both parts of the teacher questionnaire and 8 percent were matched with only the first part (the demographic background section) of the questionnaire. The lower match rate for both parts of the questionnaire for eighth-grade students was due in part to the fact that in grade 8 students were matched to the particular class that the teacher taught. Class membership information was often missing or ambiguous. For grade 4, students only had to be matched to the main teacher, resulting in higher match rates. Thus, 93 percent of the fourth-graders and 79 percent of the eighth-graders were matched with at least the background information about their writing teachers.

Chapter 21

DATA ANALYSIS OF THE STATE WRITING ASSESSMENT¹

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21.1 INTRODUCTION

This chapter describes the analyses used in developing the 1998 state assessment writing scale. The 1998 state writing assessment was administered to eighth-grade public- and nonpublic-school students for 40 jurisdictions. This was the first state assessment in writing. The procedures used were similar to those employed in the analysis of the 1990, 1992, and 1996 state assessments in mathematics (Jenkins, Kulick, Kaplan, Wang, Qian, Wang, 1997; Mazzeo, 1991; Mazzeo, Chang, Kulick, Fong, & Grima, 1993), the 1992 and 1994 state assessments in reading (Allen, Mazzeo, Ip, Swinton, Isham, & Worthington, 1995; Allen, Mazzeo, Isham, Fong, & Bowker, 1994), and are based on the philosophical and theoretical rationale given in Chapter 12. For 1998, the NAEP writing assessment framework incorporated a balance of knowledge and skills based on current reform reports, exemplary curriculum guides, and research on the teaching and learning of writing. The NAEP report card for state assessments presents average scale scores and achievement-level results for public-school students. In the 1998 state assessment, an attempt was made to include more students with disabilities (SD) and students with limited English proficiency (LEP) by liberalizing inclusion rules allowing for accommodations. Although the 1998 state writing analysis is the first state writing assessment, comparisons of writing results for state and national assessments are essential. The sample of students used for analysis and reporting was formed so that comparable inclusion rules were used.

There were four major steps in the analysis of the state assessment writing data, each of which is described in a separate section:

- Conventional item and test analyses (Section 21.2)
- Item response theory (IRT) scaling (Section 21.3)
- Estimation of state and subgroup scale score distributions based on the “plausible values” methodology (Section 21.4)
- Linking of the 1998 state assessment scales to the corresponding scales from the 1998 national assessment (Section 21.5)

For the context of the assessment instruments and administration procedures of the writing assessments, see Section 19.2.

¹ Jiahe Qian was the primary person responsible for the planning, specification, and coordination of the state writing analyses in collaboration with Hua-Hua Chang. Computing activities for all writing scaling and data analyses were directed by Bruce A. Kaplan and completed by Youn-Hee Lim and Ting Lu. Others contributing to the analysis of writing data were David S. Freund, Jo-Lin Liang, and Katharine E. Pashley.

21.2 STATE ITEM ANALYSES

21.2.1 Conventional Item and Test Analyses

This section contains a detailed description of the item analysis performed on the state writing data. As was discussed in Chapter 20, only the 25-minute writing blocks were included in the writing scale. Because there is only one item per block, all twenty 25-minute blocks (items) were treated together as one large block in the item analysis. The main statistics analyzed are mean item scores and frequencies of responses at each score point. Table 21-1 contains summary statistics for overall samples and by the order of the block within booklet, based on the data from all 40 jurisdictions. The senate weights were used in item analysis and scaling procedure (see Sections 15.5 and 17.5). Use of the senate weights does nothing to alter the value of statistics calculated separately within each jurisdiction. Items W006402 and W007602 were presented to accommodated students in the writing assessment. To make the statistics comparable with those of other items, the accommodated students were not included in the item analysis calculation.

For statistics obtained from samples that combine students from different jurisdictions, use of the senate weights results in a roughly equal contribution of each jurisdiction's data to the final value of the estimate. As discussed in Mazzeo (1991), equal contribution of each jurisdiction's data to the results of the IRT scaling was viewed as a desirable outcome and the same rescaled weights were only adjusted slightly in carrying out that scaling. Hence, the item analysis statistics shown in Table 21-1 is approximately consistent with the weighting used in scaling.

Table 21-1 shows the number of students assigned each item, the average item scores and the percentage of students in each category of an item. For the constructed-response items in the writing assessment, the score means were calculated as item score mean. As is evident from Table 21-1, the difficulty of the items did not vary greatly.

This table also indicates that there was little variability in average item scores by block position within the assessment booklet. The differences in item statistics were small for items appearing in blocks in the first position and in the second position. However, differences were consistent in their direction. The average item scores were higher when each block was presented in the first position.

In an attempt to maintain rigorous standardized administration procedures across the jurisdictions, a Westat-trained quality control monitor would observe randomly selected sessions within each jurisdiction. If a jurisdiction had never participated in a state assessment, a randomly selected 50 percent of the sessions within jurisdictions were monitored; otherwise, a 25 percent of sampled sessions would be monitored within jurisdictions. Because all jurisdictions in the 1998 state writing assessment had participated in previous state assessments, 25 percent of sessions were monitored in each jurisdiction. Observations from the monitored sessions provided information about the quality of administration procedures and the frequency of departures from standardized procedures in the monitored sessions.

The 1998 state assessment in writing included students sampled from nonpublic schools. The nonpublic-school population that was sampled included students from Catholic schools, private religious schools, and private nonreligious schools (all referred to by the term "nonpublic school"). Table 21-2 contains the item descriptive statistics for total, public-school sessions, and nonpublic-school sessions, respectively. Of the 40 jurisdictions that reported in the state assessment in writing, 39 had public-school samples, while 18 of the 40 jurisdictions had nonpublic-school samples that met reporting requirements.

Table 21-1
Descriptive Statistics Writing Prompts, Writing 25-Minute State Samples, Grade 8

Item ID	Description	n	Percentage of Students in Each Category							Total Item Mean	1 st Position Item Mean*	2 nd Position Item Mean*
			Off-task	0	1	2	3	4	5			
W006002	Cartoon Story	9,190	3.70	0.81	12.14	30.79	33.76	17.47	5.04	3.70	3.80	3.57
W006102	President for a Day	9,272	1.67	0.66	12.30	30.43	38.37	14.37	3.87	3.65	3.70	3.58
W006202	Plums	9,274	1.82	0.88	14.26	38.39	31.34	12.21	2.92	3.48	3.60	3.40
W006302	Tower	9,300	1.64	6.20	6.18	23.63	38.62	21.50	3.87	3.75	3.81	3.68
W006402 [†]	Principal for a Day	9,337	1.87	3.04	8.09	20.87	40.45	19.70	7.84	3.89	4.03	3.83
W006502	Pioneer Journal	9,316	2.37	0.91	5.46	21.99	45.99	22.35	3.29	3.93	4.00	3.86
W006602	Space Visitor	9,376	2.43	0.96	10.52	20.51	49.25	14.48	4.29	3.79	3.87	3.73
W006802	Performance Review	9,261	2.18	1.07	8.05	32.14	43.56	12.12	3.05	3.67	3.74	3.62
W006902	New Park	9,392	1.22	1.05	8.61	29.01	48.80	10.31	2.23	3.65	3.79	3.56
W007002	Dream Weekend	9,428	1.43	1.01	6.76	28.58	48.04	12.72	2.88	3.73	3.85	3.66
W007102	Backpack	9,262	1.61	1.89	5.47	24.04	54.24	12.38	1.98	3.76	3.86	3.67
W007202	Designing a TV Show	9,260	1.78	2.65	12.56	44.97	31.62	6.61	1.60	3.32	3.38	3.26
W007302	Save a Book	9,286	2.38	3.10	9.55	32.05	47.23	6.20	1.87	3.49	3.60	3.41
W007402	Life's Lessons	9,291	2.14	3.14	7.90	26.78	41.83	15.98	4.36	3.73	3.84	3.65
W007602 [†]	Lengthening School Year	9,430	1.47	2.67	11.04	36.07	34.86	12.15	3.22	3.52	3.62	3.52
W007702	School Schedule	9,344	1.79	2.73	11.55	38.20	40.08	6.76	0.68	3.39	3.47	3.32
W007802	Fast Food	9,335	1.57	4.99	7.63	27.52	40.82	15.16	3.87	3.65	3.78	3.58
W007902	Class Trip	9,370	1.21	2.02	10.32	38.28	41.53	6.21	1.64	3.44	3.61	3.38
W008002	Driving Age	9,315	1.87	1.40	10.72	34.24	41.94	10.91	0.78	3.53	3.59	3.49
W008102	Teens in Malls	9,326	1.51	4.23	11.10	29.33	40.35	12.07	2.91	3.54	3.66	3.47

* The means were calculated by coding responses from 1 to 6, according to standard IA procedures.

[†] This item was presented to the accommodated students in the writing assessment. To make the comparisons of statistics comparable with those of other items, the accommodated students were not included in the item analysis calculation.

Key:

n = Unweighted sample size
 0 = Unsatisfactory
 1 = Insufficient
 2 = Uneven
 3 = Sufficient

4 = Skilled
 5 = Excellent

Table 21-2
Descriptive Statistics for Each Item of the Writing State Assessment
Using Senate Weights (Scaled from 0 to 5), Grade 8

Item ID	Public and Private						Public						Private					
	n			Mean*			n			Mean*			n			Mean*		
	Overall	1st Position	2nd Position	Overall	1st Position	2nd Position	Overall	Mon.	Unmon.	Overall	Mon.	Unmon.	Overall	Mon.	Unmon.	Overall	Mon.	Unmon.
W006002	9,190	4,556	4,634	3.70	3.80	3.57	8,399	2,094	6,305	3.66	3.68	3.66	791	242	549	4.03	3.94	4.08
W006102	9,272	4,615	4,657	3.65	3.70	3.58	8,445	2,093	6,352	3.60	3.65	3.58	827	252	575	4.11	3.83	4.24
W006202	9,274	4,635	4,639	3.48	3.60	3.40	8,453	2,136	6,317	3.46	3.45	3.47	821	248	573	4.00	4.08	3.97
W006302	9,300	4,654	4,646	3.75	3.81	3.68	8,474	2,074	6,400	3.71	3.65	3.73	826	252	574	4.21	4.06	4.27
W006402 [†]	9,337	4,603	4,734	3.89	4.03	3.83	8,539	2,168	6,371	3.91	3.92	3.90	798	255	543	4.17	4.03	4.24
W006502	9,316	4,694	4,622	3.93	4.00	3.86	8,466	2,108	6,358	3.91	3.91	3.91	850	260	590	4.26	4.40	4.20
W006602	9,376	4,694	4,682	3.79	3.87	3.73	8,567	2,116	6,451	3.78	3.81	3.77	809	253	556	4.08	4.10	4.07
W006802	9,261	4,643	4,618	3.67	3.74	3.62	8,458	2,031	6,427	3.66	3.65	3.66	803	233	570	4.03	4.15	3.99
W006902	9,392	4,663	4,729	3.65	3.79	3.56	8,590	2,102	6,488	3.65	3.67	3.64	802	235	567	4.09	4.19	4.04
W007002	9,428	4,722	4,706	3.73	3.85	3.66	8,601	2,146	6,455	3.72	3.78	3.70	827	251	576	4.14	4.04	4.18
W007102	9,262	4,611	4,651	3.76	3.86	3.67	8,485	2,090	6,395	3.75	3.71	3.76	777	240	537	4.06	4.01	4.08
W007202	9,260	4,624	4,636	3.32	3.38	3.26	8,443	2,041	6,402	3.29	3.29	3.28	817	244	573	3.74	3.71	3.75
W007302	9,286	4,606	4,680	3.49	3.60	3.41	8,474	2,021	6,453	3.47	3.46	3.48	812	242	570	3.94	3.99	3.92
W007402	9,291	4,638	4,653	3.73	3.84	3.65	8,465	2,066	6,399	3.72	3.72	3.72	826	244	582	4.10	4.13	4.09
W007602 [†]	9,430	4,715	4,715	3.52	3.62	3.52	8,573	2,111	6,462	3.54	3.50	3.55	857	248	609	3.96	3.88	3.99
W007702	9,344	4,670	4,674	3.39	3.47	3.32	8,491	2,030	6,461	3.36	3.37	3.36	853	246	607	3.77	3.80	3.75
W007802	9,335	4,650	4,685	3.65	3.78	3.58	8,513	2,044	6,469	3.66	3.61	3.67	822	239	583	4.04	4.01	4.06
W007902	9,370	4,699	4,671	3.44	3.61	3.38	8,531	2,025	6,506	3.47	3.46	3.47	839	246	593	3.82	3.94	3.78
W008002	9,315	4,639	4,676	3.53	3.59	3.49	8,477	2,102	6,375	3.51	3.54	3.50	838	244	594	3.89	3.93	3.87
W008102	9,326	4,662	4,664	3.54	3.66	3.47	8,464	2,044	6,420	3.53	3.54	3.53	862	247	615	3.95	3.93	3.96

Mon. = Monitored Unmon. = Unmonitored

* The means were calculated by coding responses from 1 to 6, according to standard IA procedures.

[†] This item was presented to the accommodated students in the writing assessment. To make the comparisons of statistics comparable with those of other items, the accommodated students were not included in the item analysis calculation.

Consistent differences were evident between the public- and nonpublic-school students. The difference in average item score between public- and nonpublic-school students (i.e., public item mean minus nonpublic item mean) range from -0.54 to -0.26 with an average of -0.40, indicating that public-school students were generally lower in average item scores.

Within each school type session, Table 21-2 also provides the item descriptive statistics for the monitored or unmonitored sessions. When results were aggregated over all participating jurisdictions, there was little difference between the performance of students who attended monitored or unmonitored sessions. When public-school results were aggregated over all participating jurisdictions, there was little difference between the performance of students who attended monitored or unmonitored sessions. For nonpublic-school data, the difference was also very small. The average item score was 3.62 for both monitored public-school sessions and unmonitored public-school sessions. The average item score was 4.01 for monitored nonpublic-school sessions and 4.03 for unmonitored nonpublic-school sessions.

Table 21-3 summarizes the differences between monitored and unmonitored average item scores for the jurisdictions. These are mean differences within a jurisdiction averaged over all items in all the booklets. The information in the table combines public- and nonpublic-school data. The mean difference and median difference were close to zero. There are 15 jurisdictions with negative differences (i.e., students from unmonitored sessions scored higher than students from monitored sessions). None were larger in absolute magnitude than 0.083. The results indicate that across jurisdictions, the differences between monitored and unmonitored sessions were relatively small.

21.3 STATE IRT SCALING

21.3.1 Samples Used in State IRT Scaling

As in other state assessments, a single set of item parameters for each item was estimated and used for all jurisdictions (Mazzeo, 1991). Item parameter estimation was carried out using a 25 percent systematic random sample of the public-school students participating in the 1998 state assessment and included equal numbers of students from each participating jurisdiction, half from monitored sessions and half from unmonitored sessions whenever possible. All students in the scaling sample were public-school students. The sample consisted of 89,164 students, with 590 students being sampled from each of the 39 participating jurisdictions (excluding DoDEA/DDESS² and DoDEA/DoDDS³ schools). Of the 590 records sampled from each jurisdiction, 295 were drawn from the monitored sessions and 295 were drawn from the unmonitored sessions. There were not enough monitored students in the District of Columbia and Virgin Islands to sample these two jurisdictions. All the monitored students were taken in these two jurisdictions. The rescaled weights for the 25 percent sample of students used in item calibration were adjusted slightly to ensure that (1) each jurisdiction's data contributed equally to the estimation process, and (2) data from monitored and unmonitored sessions contributed equally. All calibrations were carried out using the rescaled sampling weights described in Section 11.3 in an effort to ensure that each jurisdiction's data contributed equally to the determination of the item parameter estimates.

² DoDEA/DDESS is the Department of Defense Education Activity Department of Defense Domestic Dependent Elementary and Secondary Schools.

³ DoDEA/DoDDS is the Department of Defense Education Activity Department of Defense Dependents Schools.

Table 21-3
Effect of Monitoring Sessions by Jurisdiction:
Average Jurisdiction Item Scores for Monitored and Unmonitored Sessions, Grade 8

Jurisdiction	Monitored Mean	Unmonitored Mean	Monitored – Unmonitored
Alabama	0.488	0.495	-0.007
Arizona	0.498	0.502	-0.004
Arkansas	0.488	0.475	0.013
California	0.508	0.494	0.014
Colorado	0.539	0.536	0.002
Connecticut	0.610	0.593	0.016
Delaware	0.556	0.487	0.069
Florida	0.497	0.491	0.006
Georgia	0.515	0.517	-0.002
Hawaii	0.483	0.452	0.031
Kentucky	0.525	0.512	0.014
Louisiana	0.472	0.486	-0.014
Maine	0.547	0.558	-0.012
Maryland	0.548	0.528	0.021
Massachusetts	0.562	0.563	-0.001
Minnesota	0.520	0.519	0.002
Mississippi	0.469	0.450	0.019
Missouri	0.527	0.512	0.015
Montana	0.511	0.538	-0.027
Nevada	0.497	0.477	0.021
New Mexico	0.502	0.496	0.006
New York	0.509	0.519	-0.010
North Carolina	0.552	0.541	0.011
Oklahoma	0.535	0.536	-0.001
Oregon	0.512	0.527	-0.015
Rhode Island	0.552	0.527	0.025
South Carolina	0.492	0.480	0.013
Tennessee	0.509	0.519	-0.010
Texas	0.533	0.550	-0.017
Utah	0.508	0.488	0.020
Virginia	0.560	0.537	0.024
Washington	0.512	0.526	-0.014
West Virginia	0.516	0.511	0.004
Wisconsin	0.564	0.536	0.028
Wyoming	0.510	0.509	0.000
District of Columbia	0.430	0.412	0.018
DoDEA/DDESS	0.598	0.564	0.034
DoDEA/DoDDS	0.550	0.558	-0.008
Virgin Islands	0.355	0.438	-0.083
Mean			0.007
Median			0.006
Minimum			-0.027
1st Quartile			-0.006
3rd Quartile			0.019
Maximum			0.069

Only public-school data were used in the scaling models for the state assessments. Based on the analysis of item response function plots for the public/nonpublic comparisons, the public/nonpublic data have similar item response functions for the state writing sample. The plots of empirical and model-based estimates of the item response function were used to study the appropriateness. Each plot contained three estimates of each item category characteristic curve: two sets of empirical estimates that represented public- and nonpublic-school samples, respectively, were compared with a third set that assumed the partial-credit model, which was estimated from public-school data only. The plots for all the items showed reasonable closeness between two empirical curves and the theoretical curve.

21.3.2 Item Parameter Estimation

For the 1998 state assessment, a writing IRT-based scale was developed using the generalized partial-credit model described in Chapter 12. The item parameter estimates were obtained using the NAEP BILOG/PARSCALE program, which combines Mislevy and Bock's (1982) BILOG and Muraki and Bock's (1991) PARSCALE computer programs. The program uses marginal maximum likelihood estimation procedures to estimate the parameters (Muraki, 1992).

All the items in writing assessments were extended constructed-response items. Each of these items was also scaled using the generalized partial-credit model. Six scoring levels were defined:

- 0 = Unsatisfactory
- 1 = Insufficient Response
- 2 = Uneven Response
- 3 = Sufficient Response
- 4 = Skilled Response
- 5 = Excellent Response

As was done in previous assessments of writing, "missing" responses (i.e., students did not reach the task, or provided an off-task response) were treated as if the item had not been presented to the student. (See Section 12.3.1 for more information on this topic.)

Empirical Bayes modal estimates of all item parameters were obtained from the BILOG/PARSCALE program. Item parameter estimation proceeded as follows. The subject ability distribution was assumed fixed (normal [0,1]) and a stable solution was obtained. Starting values for the item parameters were provided by item analysis routines. After each estimation cycle, the subject ability distribution was restandardized to have a mean of 0 and standard deviation of 1. Correspondingly, parameter estimates for that cycle were also linearly standardized. Two items, W006402 and W007602, were presented to the accommodated students in the state assessment. The data of accommodated students were calibrated as a separate population in the scaling procedure. Their weights were appropriately reduced to the proportion of the students in the student group who took the items in the test.

During and subsequent to item parameter estimation, evaluations of the fit of the IRT models were carried out for each of the items in the item pool. These evaluations were conducted to determine the final composition of the item pool making up the scales by identifying misfitting items that should not be included. Evaluations of model fit were based primarily on graphical analyses.

As with most procedures that involve evaluating plots of data versus model predictions, a certain degree of subjectivity is involved in determining the degree of fit necessary to justify use of the model. There are a number of reasons why evaluation of model fit relied primarily on analyses of plots rather than seemingly more objective procedures based on goodness-of-fit indices such as the "pseudo chi-

squares” produced in BILOG (Mislevy & Bock, 1982). First, the exact sampling distributions of these indices when the model fits are not well understood, even for fairly long tests. Mislevy and Stocking (1989) point out that the usefulness of these indices appears particularly limited in situations like NAEP, where examinees have been administered relatively short tests. Studies by Stone, Ankenmann, Lane, and Liu (1993), and by Stone, Mislevy, and Mazzeo (1994) using simulated data suggest that the correct reference chi-square distributions for these indices have considerably fewer degrees of freedom than the value indicated by the BILOG/PARSCALE program and require additional adjustments of scale. However, it is not yet clear how to estimate the correct number of degrees of freedom and necessary scale factor adjustment factors. Consequently, pseudo chi-square goodness-of-fit indices are used only as rough guides in interpreting the severity of model departures.

Second, as discussed in Chapter 12, it is almost certainly the case that, for most items, item response models hold only to a certain degree of approximation. Given the large sample sizes used in the state assessment, there will be sets of items for which one is almost certain to reject the hypothesis that the model fits the data even though departures are minimal in nature or involve kinds of misfit unlikely to impact on important model-based inferences. In practice, one is almost always forced to temper decisions based on hypothesis testing with judgments about the severity of model misfit and the potential impact of such misfit on final results.

For all of the items of the state writing assessment, the fit of the model was extremely good. Figure 21-1 and Figure 21-2 provide typical examples of what the plots look like for this class of items. The item W006502 in Figure 21-1, an extended constructed-response item, has a good fit. This plot shows two estimates of each item category characteristic curve, one set that does not assume the generalized partial-credit model (shown as diamonds) and one that does (the solid curves). The estimates for all parameters for the item in question are also indicated on the plot. As shown by the figure, the estimates agree quite well, although some diamonds on the empirical curve lie above the theoretical curve in the lowest category. They contain just a few students. The sizes of the diamonds are proportional to the number of students categorized as having thetas at or close to the indicated value. Although few student responses were categorized in the highest category, there were adequate data to estimate the model-based estimates for those categories (the solid curves). Such results were typical for the extended constructed-response items.

The plot of item W007602 in Figure 21-2 shows three estimates of each item category characteristic curve, one that assumes the partial-credit model (the solid curves) that was fit on the accommodated and nonaccommodated cases together, and two sets that do not assume the generalized partial-credit model (shown as diamonds for nonaccommodated cases and circles for accommodated cases). The figure also shows a very good fit, except for some accommodated cases lying above theoretical curve in the third category.

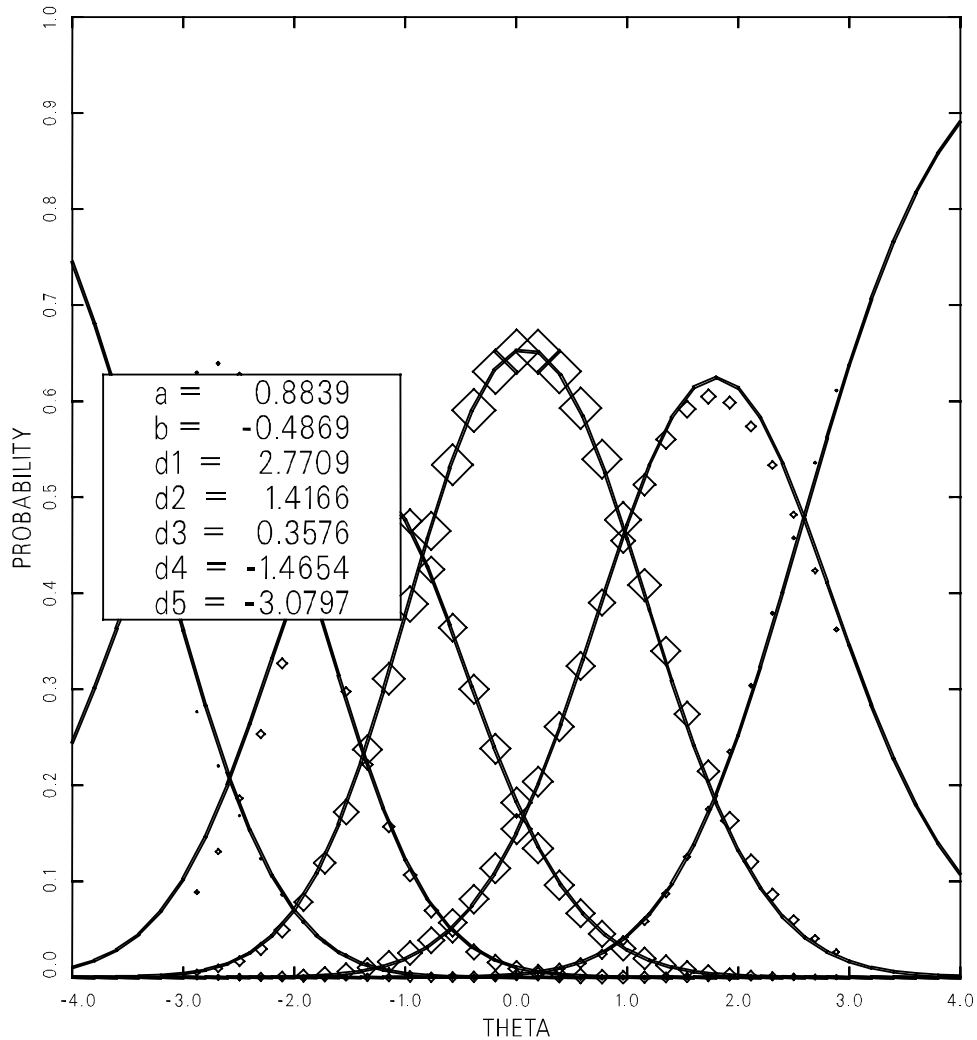
As discussed above, all of the items retained for the final scaling display good model fit. No item needed to be recoded for the state writing assessment. The IRT parameters for the items included in the state assessment are listed in Appendix E.

21.4 GENERATION OF PLAUSIBLE VALUES

The scale score distributions in each jurisdiction (and for some demographic subgroups within each jurisdiction) were estimated by using the univariate plausible values methodology and the corresponding BGROUP computer program. As described in Chapter 12, the BGROUP program estimates scale score distributions using information from student item responses, measures of student background variables, and the item parameter estimates obtained from the BILOG/PARSCALE program.

Results from Mazzeo's research (1991) suggested that separate conditioning models needed to be estimated for each jurisdiction because the parameters estimated by the conditioning model differed across jurisdictions. If a jurisdiction had a nonpublic-school sample, students from that sample were included in this part of the analysis, and a conditioning variable differentiating between public- and nonpublic-school students was included. This resulted in the estimation of 41 distinct conditioning models for the eighth-grade 1998 state writing assessment.

Figure 21-1
*Polytomous Item (W006502) Exhibiting Good Model Fit**

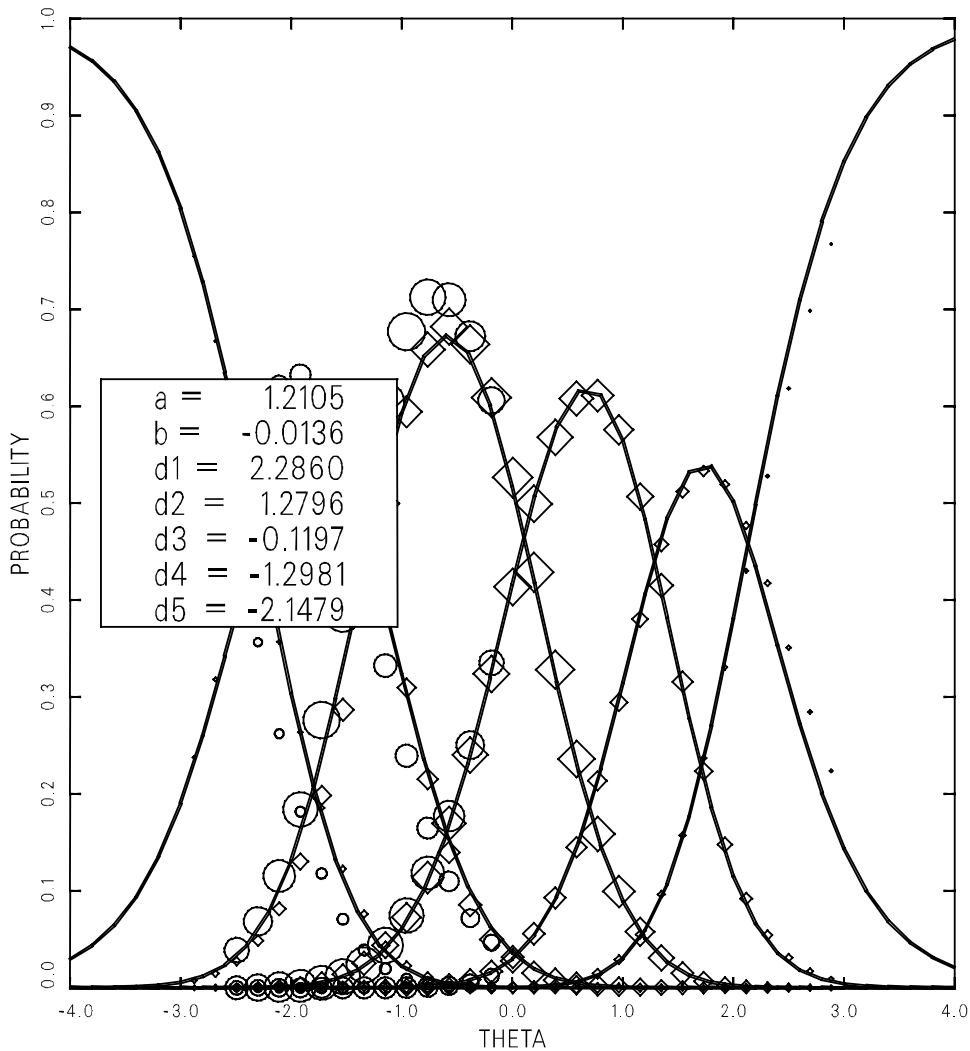


** Diamonds represent 1998 grade 8 writing assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

Reporting each jurisdiction's results required analyses describing the relationships between scale scores and a large number of background variables. The background variables included in each jurisdiction's model were principal component scores derived from the within-jurisdiction correlation matrix of selected main-effects and two-way interactions associated with a wide range of student, teacher, school, and community variables. The background variables included student demographic

characteristics (e.g., the race/ethnicity of the student, highest level of education attained by parents, status of test accommodation), students' perceptions about writing, student behavior both in and out of school (e.g., amount of TV watched daily, amount of writing homework done each day), the type of writing class being taken, and a variety of other aspects of the students' background and preparation, and the educational, social, and financial environment of the schools they attended. Information also was collected from students' teachers about the types of educational practice, such as the amount of classroom emphasis on various topics included in the assessment provided by the students' teachers, the background and preparation of their teachers.

Figure 21-2
*Polytomous Item (W007602) Exhibiting Good Model Fit**



** Diamonds represent 1998 grade 8 writing assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

As described in the Chapter 12, to avoid biases in reporting results and to minimize biases in secondary analyses, it is desirable to incorporate measures of a large number of independent variables in

the conditioning model. When expressed in terms of contrast-coded main effects and interactions, the number of variables to be included totaled 1,129. Appendix F provides a listing of the full set of contrasts defined. These contrasts were the common starting point in the development of the conditioning models for each of the participating jurisdictions.

Because of the large number of these contrasts and the fact that, within each jurisdiction, some contrasts had zero variance, some involved relatively small numbers of individuals, and some were highly correlated with other contrasts or sets of contrasts, an effort was made to reduce the dimensionality of the predictor variables in each jurisdiction's BGROUP models. As was done for the 1990, 1992, and 1996 state assessments in mathematics and the 1992, 1994, and 1998 state assessment in reading, the original background variable contrasts were standardized and transformed into a set of linearly independent variables by extracting separate sets of principal components (one set for each of the 40 jurisdictions) from the within-jurisdiction correlation matrices of the original contrast variables. The principal components, rather than the original variables, were used as the independent variables in the conditioning model. As was done for the previous assessments, the number of principal components included for each jurisdiction was the number required to account for approximately 90 percent of the variance in the original contrast variables. Research based on data from the 1990 state assessment in mathematics suggests that results obtained using such a subset of the components will differ only slightly from those obtained using the full set (Mazzeo et al., 1992).

Table 21-4 lists the number of principal components included in and the proportion of scale score variance accounted for by the conditioning model for each participating jurisdictions.

It is important to note that the proportion of variance accounted for by the conditioning model differs across jurisdictions. Such variability is not unexpected for at least two reasons. First, there is no reason to expect the strength of the relationship between scale score and demographics to be identical across all jurisdictions. In fact, one of the reasons for fitting separate conditioning models is that the strength and nature of this relationship may differ across jurisdictions. Second, the homogeneity of the demographic profile also differs across jurisdictions. As with any correlation analysis, the restriction of the range in the predictor variables will attenuate relationship.

Table 21-4
*Proportion of Scale Score Variance Accounted by Conditioning Model
for the Writing State Assessment, Grade 8*

Jurisdiction	Number of Principal Components	Proportion of Scale Score Variance*
Alabama	242	0.670
Arizona	264	0.704
Arkansas	249	0.731
California	270	0.752
Colorado	259	0.698
Connecticut	276	0.712
Delaware	198	0.775
Florida	284	0.647

* (Total Variance - Residual Variance)/Total Variance, where Total Variance consists of both sampling and measurement error variance

(continued)

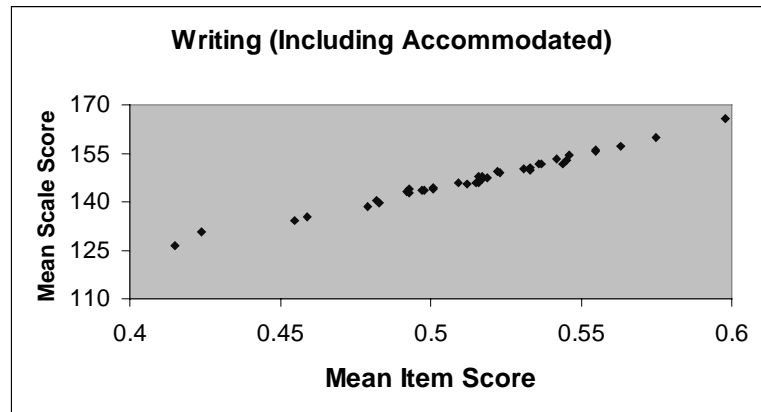
Table 21-4 (continued)
*Proportion of Scale Score Variance Accounted by Conditioning Model
for the Writing State Assessment, Grade 8*

Jurisdiction	Number of Principal Components	Proportion of Scale Score Variance *
Georgia	293	0.732
Hawaii	213	0.665
Kentucky	240	0.699
Louisiana	274	0.696
Maine	228	0.657
Maryland	257	0.719
Massachusetts	256	0.714
Minnesota	219	0.705
Mississippi	241	0.663
Missouri	255	0.705
Montana	194	0.647
Nevada	229	0.685
New Mexico	260	0.709
New York	240	0.714
North Carolina	287	0.690
Oklahoma	232	0.680
Oregon	246	0.667
Rhode Island	225	0.718
South Carolina	290	0.766
Tennessee	234	0.711
Texas	263	0.664
Utah	267	0.621
Virginia	291	0.733
Washington	267	0.705
West Virginia	249	0.731
Wisconsin	214	0.672
Wyoming	200	0.641
District of Columbia	163	0.730
DoDEA/DDESS	142	0.834
DoDEA/DoDDS	173	0.667
Virgin Islands	138	0.841

* (Total Variance - Residual Variance)/Total Variance, where Total Variance consists of both sampling and measurement error variance

As discussed in Chapter 12, NAEP scales are viewed as summaries of consistencies and regularities that are present in item-level data. Such summaries should agree with other reasonable summaries of the item-level data. In order to evaluate the reasonableness of the scaling and estimation results, a variety of analyses were conducted to compare state-level and subgroup-level performance in terms of the scaled scores and in terms of the average proportion correct for the set of items. High agreement was found in all of these analyses. One set of such analyses is presented in Figure 21-3.

Figure 21-3
Plot of Mean Scale Score Versus Mean Item Score by Jurisdiction, Grade 8



The figure contains scatterplots of the state scaled score mean versus the state item score means, for the writing scale. In calculating the statistics for both metrics, the accommodated students are included. As is evident from the figures, there is an extremely strong relationship between the estimates of state-level performance in the scale-score and item-score metrics.

21.5 FINAL SCORE SCALES

21.5.1 Linking State and National Scales

A major purpose of the state assessment program was to allow each participating jurisdiction to compare its 1998 results with the nation as a whole and with the region of the country in which that jurisdiction is located.

Although the students in the 1998 state writing assessment were administered the same test booklets as the eighth-graders in the national assessment, separate state and national scalings were carried out (for reasons explained in Mazzeo, 1991, and Yamamoto & Mazzeo, 1992). For meaningful comparisons to be made between each of the state assessment jurisdictions and the relevant national samples, results from these two assessments had to be expressed in terms of a similar system of scale units. The purpose of this section is to describe the procedures used to align the 1998 state assessment scales with their 1998 national counterparts. The procedures that were used represent an extension of the common population equating procedures employed to link the previous national and state scales (Mazzeo, 1991; Yamamoto & Mazzeo, 1992).

Using the house sampling weights provided by Westat, the combined sample of students from all participating jurisdictions was used to estimate the distribution of scale scores for the population of students enrolled in public schools that participated in the state assessment.⁴ The total sample size was 89,164. A subsample of the eighth-grade national sample, consisting of grade-eligible public-school students from any of the 40 jurisdictions that participated in the 1998 state assessment, was used to obtain estimates of the distribution of scale scores for the same target population. This subsample of

⁴ Students from Virgin Islands, DoDEA/DDESS, and DoDEA/DoDDS schools were excluded from the state aggregate sample for purposes of linking.

national data is referred to as the national linking (NL)⁵ sample, and appropriate NL weights were obtained from Westat. Again, appropriate weights provided by Westat were used. Thus, for each scale, two sets of scale score distributions were obtained and used in the linking process. One set, based on the sample of combined data from the state assessment (referred to as the state aggregate, or SA), and using item parameter estimates and conditioning results from that assessment, was in the metric of the 1998 state assessment. The other, based on the NL sample from the 1998 national assessment and obtained using item parameters and conditioning results from the national assessment, was in the reporting metric of the 1998 national assessment. The state assessment and national scales were made comparable by constraining the mean and standard deviation of the two sets of estimates to be equal.

More specifically, the following steps were followed to linearly link the scales of the two assessments:

- 1) For each scale, estimates of the scale score distribution for the SA sample was obtained using the full set of plausible values generated by the BGROUP program. The weights used were the final sampling weights provided by Westat (see Section 11.7). For each scale, the arithmetic mean of the five sets of plausible values was taken as the overall estimated mean and the square root of arithmetic average of the variances of the five sets of plausible values was taken as the overall estimated standard deviation.
- 2) For each scale, the estimated scale score distribution of the NL sample was obtained, again using the full set of plausible values generated by the BGROUP program. The weights used were specially provided by Westat to allow for the estimation of scale score distributions for the same target population of students estimated by the jurisdiction data. The means and standard deviations of the distributions (in the 1998 national reporting metric) for each scale were obtained for this sample in the same manner as described in Step 1.
- 3) For each scale, a set of linear transformation coefficients was obtained to link the state scale to the corresponding national scale. The linking was of the form

$$\theta^* = A \cdot \theta + B$$

where

θ = a scale score level in terms of the system of units of the provisional BILOG/PARSCALE scale of the state assessment scaling

θ^* = a scale score level in terms of the system of units comparable to those used for reporting the 1998 national writing results

A = $[\text{Standard Deviation}_{\text{NL}}]/[\text{Standard Deviation}_{\text{SA}}]$

B = $\text{Mean}_{\text{NL}} - A[\text{Mean}_{\text{SA}}]$

where the subscripts refer to the NL sample and to the SA sample.

⁵ Note that in previous state assessments, the national linking sample was called the state aggregate comparison, or SAC, sample. Many people thought this was easy to confuse with state data, so the term “national linking” is used in this report.

The final conversion parameters for transforming plausible values from the provisional BILOG/PARSCALE scales to the final state assessment reporting scales are given in Table 21-5. All state assessment results are reported in terms of the θ^* metric.

Table 21-5
Coefficients of Linear Transformations for the 1998 State Writing Assessment

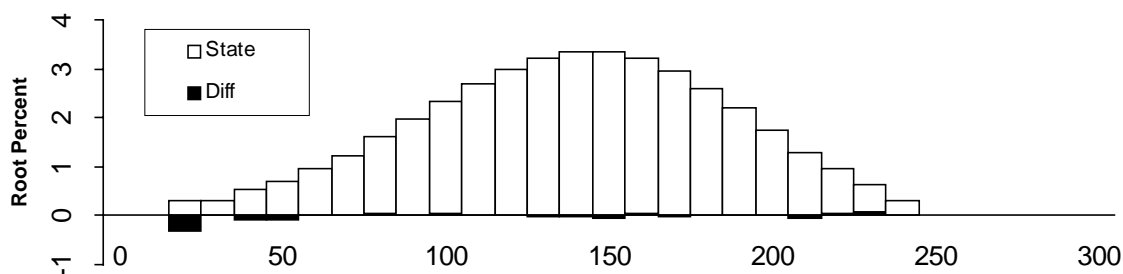
Grade	Writing Scale	A	B
8	State Writing	33.70	147.13

As is evident from the discussion above, a linear method was used to link the scales from the state and national assessments. While these linear methods ensure equality of means and standard deviations for the SA (after transformation) and the NL samples, they do not guarantee the shapes of the estimated scale score distributions for the two samples to be the same. As these two samples are both from a common target population, estimates of the scale score distribution of that target population based on each of the samples should be quite similar in shape in order to justify strong claims of comparability for the state and national scales. Substantial differences in the shapes of the two estimated distributions would result in differing estimates of the percentages of students above achievement levels or of percentile locations, depending on whether state or national scales were used—a clearly unacceptable result given claims about the comparability of the scales. In the face of such results, nonlinear linking methods would be required.

Analyses were carried out to verify the degree to which the linear linking process described above produced comparable scales for state and national results. Comparisons were made between two estimated scale score distributions, one based on the SA sample and one based on the NL sample. The comparisons were carried out using slightly modified versions of what Wainer (1974) refers to as suspended rootograms. The final reporting scales for the state and national assessments were each divided into 10-point intervals. Two sets of estimates of the percentage of students in each interval were obtained, one based on the SA sample and one based on the NL sample. Following Tukey (1977), the square roots of these estimated percentages were compared.⁶ The comparisons are shown in Figure 21-4. The height of each of the unshaded bar corresponds to the square root of the percentage of students from the state assessment aggregate sample in each 10-point interval on the final reporting scale.

⁶ The square root transformation allows for more effective comparisons for counts (or equivalently, percentages) when the expected number of counts in each interval is likely to vary greatly over the range of intervals, as is the case for the NAEP scales where the expected counts of individuals in intervals near the extremes of the scale (e.g., below 50 and above 250) are dramatically smaller than the counts obtained near the middle of the scale.

Figure 21-4
*Rootogram Comparing Scale Score Distributions
 for the State Assessment Aggregate Sample
 and the National Linking Sample for the Composite Scale, Grade 8*



The shaded bars show the differences in root percents between the NL and SA estimates. Positive differences indicate intervals in which the estimated percentages from the SA sample are lower than those obtained from the NL. Conversely, negative differences indicate intervals in which the estimated percentages from the SA sample are higher. Differences in root percents are quite small, suggesting that the shapes of the two estimated distributions are quite similar (i.e., unimodal with slight negative skewness). There is some evidence that the estimates produced using the SA data are slightly heavier in the extreme lower tails, below 50. However, even these differences at the extremes are small in magnitude (0.3 in the root percent metric) and have little impact on estimates of reported statistics such as percentages of students below the achievement levels.

21.6 PARTITIONING OF THE ESTIMATION ERROR VARIANCE

For each grade in state writing assessments, the error variance of the final transformed scale score mean was partitioned as described in Chapter 10. The partition of error variance consists of two parts: the proportion of error variance due to sampling students (sampling variance) and the proportion of error variance due to the fact that scale score, θ , is a latent variable that is estimated rather than observed. Table 21-6 contains estimates of the total error variance, the proportion of error variance due to sampling students, and the proportion of error variance due to the latent nature of θ . Instead of using 100 plausible values as in the national assessment, the calculations for the state samples are based on 5 plausible values.

Table 21-6
*Estimation Error Variance and Related Coefficients
for the Writing State Assessment, Grade 8*

State	Total Estimation Error Variance	Proportion of Variance due to ...	
		Student Sampling	Latency of θ
Alabama	1.958	0.95	0.05
Arizona	2.331	0.86	0.14
Arkansas	1.470	0.89	0.11
California	3.162	0.93	0.07
Colorado	1.719	0.91	0.09
Connecticut	1.843	0.83	0.17
Delaware	2.077	0.32	0.68
Florida	1.534	0.83	0.17
Georgia	1.822	0.83	0.17
Hawaii	1.019	0.37	0.63
Kentucky	2.320	0.92	0.08
Louisiana	1.902	0.93	0.07
Maine	2.110	0.47	0.53
Maryland	2.270	0.89	0.11
Massachusetts	2.814	0.94	0.06
Minnesota	3.492	0.81	0.19
Mississippi	1.689	0.71	0.29
Missouri	2.087	0.87	0.13
Montana	2.107	0.64	0.36
Nevada	0.750	0.48	0.52
New Mexico	0.663	0.80	0.20
New York	2.209	0.94	0.06
North Carolina	2.111	0.77	0.23
Oklahoma	1.603	0.90	0.10
Oregon	2.317	0.87	0.13
Rhode Island	0.431	0.84	0.16
South Carolina	1.196	0.82	0.18
Tennessee	3.121	0.94	0.06
Texas	2.246	0.88	0.12
Utah	1.522	0.63	0.37
Virginia	1.424	0.76	0.24
Washington	2.371	0.80	0.20
West Virginia	2.692	0.43	0.57
Wisconsin	1.746	0.96	0.04
Wyoming	2.043	0.28	0.72
District of Columbia	1.413	0.52	0.48
DoDEA/DDESS	6.695	0.40	0.60
DoDEA/DoDDS	1.476	0.47	0.53
Virgin Islands	14.194	0.14	0.86

21.7 WRITING TEACHER QUESTIONNAIRES

Teachers of the eighth-grade students were surveyed about their educational background and teaching practices. The students were matched first with their writing teacher, and then the specific classroom period. Variables derived from the questionnaire were used in the conditioning models. An additional conditioning variable was included that indicated whether the student had been matched with a teacher record. This contrast controlled estimates of subgroup means for differences that exist between matched and nonmatched students. Of the 97,589 eighth-grade students in the sample, 84,605 (86.7%, unweighted) were matched with teachers who answered both parts of the teacher questionnaire, and 6,920 (7.1%, unweighted) of the students had teachers who answered only the teacher background section of the questionnaire.

Chapter 22

ASSESSMENT FRAMEWORKS AND INSTRUMENTS FOR THE 1998 CIVICS ASSESSMENT¹

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22.1 INTRODUCTION

In 1998, NAEP conducted a national *main* civics assessment and national *special trend* civics assessment at grades 4, 8, and 12.² Chapters 22, 23, and 24 cover only the main assessment; a forthcoming report will detail the procedures and analyses of the special trend assessment.

The framework that was used for the 1998 NAEP civics assessment detailed the structure of the assessment to be given at grades 4, 8, and 12 at the national level. The framework for the civics assessment is available on the National Assessment Governing Board (NAGB) web site at <http://www.nagb.org>.

Sections 22.2 through 22.5 include a detailed description of the development of the framework, objectives, and items for the 1998 NAEP civics assessment. Sections 22.6 and 22.7 describe the final cognitive instruments. Section 22.8 describes the student background questionnaires and the civics teacher questionnaire. Additional information on the structure and content of assessment booklets can be found in Section 22.9. Section 22.10 mentions the special trend study in civics. Various committees worked on developing the framework, objectives, and items for the civics assessment. The list of committee members and consultants who participated in the 1998 development process is provided in Appendix K.

Samples of assessment questions and student responses are published in the *NAEP 1998 Civics Report Card for the Nation* (Lutkus, Weiss, Campbell, Mazzeo, & Lazer, 1999).

22.2 DEVELOPING THE CIVICS ASSESSMENT FRAMEWORK

NAGB is responsible for setting policy for NAEP; this policymaking role includes developing assessment frameworks and test specifications. Appointed by the Secretary of Education from lists of nominees proposed by the board itself in various statutory categories, the 24-member board is composed of state, local, and federal officials, as well as educators and members of the public.

NAGB began the development process for the 1998 civics objectives by establishing the NAEP Civics Consensus Project in February 1995 with the award of the framework contract to the Council of Chief State School Officers (CCSSO). The project's committees gained input through public hearings, student forums, and written reviews of successive drafts of the framework.

¹ Andrew R. Weiss manages the item-development process for NAEP civics assessments. Terry L. Schoeps coordinates the production of NAEP technical reports.

² Civics was not part of the NAEP state assessments in 1998.

For more detail on the development and specifications of the civics framework, refer to the *Civics Framework for the 1998 National Assessment of Educational Progress* (CCSSO, 1996).

Additional information on the NAEP Civics Framework can be found in three technical publications available through NAGB—*Civics Assessment and Exercise Specifications*, *Recommendations for Background Questions*, and *Reporting Recommendations*.

22.3 CIVICS FRAMEWORK AND ASSESSMENT DESIGN PRINCIPLES

The framework authors stated that given the extreme importance of competent citizenship and effective civic education for the well-being of our constitutional democracy, it is imperative that we have adequate information about what students know and are able to do with regard to civics and government. The aim of the 1998 NAEP Civics assessment was to indicate generally how much and how well students are learning essential knowledge and skills about democratic citizenship and government.

22.4 FRAMEWORK FOR THE 1998 CIVICS ASSESSMENT

The framework comprised three interrelated components: *knowledge*, *intellectual skills*, and *civic dispositions*. Of these, the *knowledge* component served as the core of the framework. The framework designers established five content areas of knowledge on which to base civics test questions:

- What are civic life, politics, and government?
- What are the foundations of the U.S. political system?
- How does the government established by the Constitution embody the purposes, values, and principles of U.S. democracy?
- What is the relationship of the United States to other nations and to world affairs?
- What are the roles of citizens in U.S. democracy?

The second component, *intellectual skills*, includes:

- identifying and describing,
- explaining and analyzing, and
- evaluating, taking, and defending a position.

The distribution of questions by intellectual skill across grade levels recommended in the assessment framework is provided in Table 22-1. Table 22-2 shows the actual distribution of these questions in the assessment.

Table 22-1
*Percentage Distribution of Questions by Intellectual Skill
as Recommended in the NAEP Civics Framework*

	Intellectual Skill		
	Identifying and Describing	Explaining and Analyzing	Evaluating, Taking, and Defending a Position
Grade 4	40%	30%	30%
Grade 8	35%	35%	30%
Grade 12	25%	40%	35%

Table 22-2
Actual Percentage Distribution of Questions by Intellectual Skill

	Intellectual Skill		
	Identifying and Describing	Explaining and Analyzing	Evaluating, Taking, and Defending a Position
Grade 4	33%	37%	30%
Grade 8	29%	38%	33%
Grade 12	18%	33%	38%

Civic dispositions refers to those aspects of a person’s character that drive him or her to contribute to the preservation and improvement of United States constitutional democracy.

All three components are summarized in the civics framework (CCSSO, 1996) as shown in Figure 22-1.

22.5 DEVELOPING THE CIVICS COGNITIVE ITEMS

Civics questions were developed by NAEP test developers and outside consultants to meet the requirements of the civics framework. In addition to matching the content and intellectual skills components, NAEP staff had to balance the question pool by question format. The question format included multiple-choice, short constructed-response, and extended constructed-response questions. Short constructed-response questions required answers ranging from a few words to a few sentences and were intended to be answered in up to two minutes. Extended constructed-response questions generally required longer written answers or more time for thinking and were intended to be answered in up to five minutes. The decision to use a specific question format was based on a consideration of how best to measure particular civics knowledge and skills.

Figure 22-1
Description of the NAEP 1998 Civics Framework Components

Knowledge

The *knowledge* component is embodied in the form of five significant and enduring questions: (1) What are civic life, politics, and government? (2) What are the foundations of the American political system? (3) How does the government established by the Constitution embody the purposes, values, and principles of American democracy? (4) What is the relationship of the United States to other nations and to world affairs? (5) What are the roles of citizens in American democracy?

Intellectual and Participatory Skills

The *intellectual and participatory skills* component involves the use of knowledge to think and act effectively in a constitutional democracy. Intellectual skills enable students to learn and apply civic knowledge in the many and varied roles of citizens. These skills help citizens identify, describe, explain, and analyze information and arguments as well as evaluate, take, and defend positions on public policies. Participatory skills enable citizens to monitor and influence public and civic life by working with others, clearly articulating ideas and interests, building coalitions, seeking consensus, negotiating compromise, and managing conflict.

Civic Dispositions

Civics dispositions refer to the inclination or "habits of the heart," as de Tocqueville called them, that pervade all aspects of citizenship. In a constitutional democracy, these dispositions pertain to the rights and responsibilities of individuals in society and to the advancement of possibilities of individuals in society and to the ideals of the polity. They include the dispositions to become an independent member of society; respect individual worth and responsibilities of a citizen; abide by the "rules of the game," such as accepting the legitimate decisions of the majority while protecting the rights of the minority; participate in civic affairs in an informed, thoughtful, and effective manner; and promote the healthy functioning of American constitutional democracy.

Table 22-3 contains the percent of assessment time for each question format as specified in the framework and as estimated for the questions selected for the assessment. Grades 8 and 12 estimated percents are closer to the target percent.

Table 22-3
NAEP 1998 Civics Assessment
Percentage of Student Assessment Time by Question Format

Question Type	Specified in Framework*	Actual Percentage of Time		
		Grade 4	Grade 8	Grade 12
Multiple Choice	60%	53%	61%	61%
Short Constructed-Response	30%	29%	27%	30%
Extended Constructed-Response	10%	18%	12%	9%

* These percentages were specified to be the same for all three grades.

Finally, the assessment framework directed test developers to ensure that 15 percent of the questions measured civic dispositions and participatory skills, and that a significant portion of questions were based on textual and visual stimulus material.

22.6 DEVELOPING THE CIVICS OPERATIONAL FORMS

In preparation for the 1998 operational assessment, questions were field-tested in 1997. The purpose of the field test was to administer a large pool of questions so that those with the best content and statistical properties could be selected for the 1998 operational assessment. The civics field test was conducted in January and February of 1997 and involved national samples of fourth-, eighth-, and twelfth-grade students. A total of 555 questions were developed for the field test. Two hundred questions were administered at grade 4, 224 at grade 8, and 244 at grade 12. The questions were organized in a series of 25-minute blocks, each containing multiple-choice, short constructed-response questions, and extended constructed-response questions. Each student received two blocks. Thirty blocks were administered as follows:

- Eight blocks at grade 4 only,
- Four blocks at grade 4 and grade 8,
- Six blocks at grade 8 only,
- Three blocks at grade 8 and grade 12, and
- Nine blocks at grade 12 only.

Field test results were used by ETS test developers to assemble the 1998 operational instruments. Approximately 500 responses were obtained for each question in the field test. Multiple-choice questions were machine scored and constructed-response questions were read and scored by staff at the National Computer Systems scoring center under the direction of NAEP/ETS staff. The raw field test data were subjected to statistical analyses by NAEP/ETS data analysts. The resulting question analyses yielded mean percentage correct, polyserial correlations, difficulty levels, and other information for each question. NAEP test developers reviewed the analyses to help determine:

- which items best measured civics knowledge and skills,
- the need for revisions of items that lacked clarity or had ineffective item formats, and
- the appropriate number of items to include in each operational assessment test book.

The items chosen for the operational assessment were revised as needed and assembled into new blocks. With the approval of the Civics Instrument Development Committee, cross-grade blocks were eliminated, because it was believed that few questions were successful measures of student knowledge at more than one grade. The blocks were reviewed by the committee in May 1997 for content and balance. Once approved by the committee, all items were subjected to content, measurement, fairness, and editorial reviews by appropriate ETS staff. The draft materials, including background questionnaires, were submitted to the Office of Management and Budget (OMB) in July 1997 for clearance. Changes requested by OMB were made in August 1997, and upon receiving approval, the assessment was sent to print.

Six blocks were assembled for grade 4 and eight blocks were assembled for each of grades 8 and 12. Each student participating in NAEP received two blocks of items. Grade 4 blocks included 15 items each, whereas the blocks at grade 8 and grade 12 included 19 items each.

22.7 DISTRIBUTION OF CIVICS ASSESSMENT ITEMS

Of the total of 393 items, there are 315 multiple-choice items, 61 short constructed-response items, and 17 extended constructed-response items that make up the 1998 civics assessment. A few of these items are used at more than one grade level. As a result, the sum of the items that appear at each grade level is greater than the total number of unique items.

Figure 22-2
Distribution of Items for the 1998 Civics Assessment

<p>Grade 4</p> <p>69 Multiple-Choice 15 Short Constructed-Response 6 Extended Constructed-Response</p>	<p>Grade 8</p> <p>123 Multiple-Choice 22 Short Constructed-Response 6 Extended Constructed-Response</p>	<p>Grade 12</p> <p>123 Multiple-Choice 24 Short Constructed-Response 5 Extended Constructed-Response</p>
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22.8 BACKGROUND QUESTIONS FOR THE 1998 CIVICS ASSESSMENT

To gather contextual information, NAEP assessments include background questions designed to provide insight into the factors that may influence civics proficiency.

NAEP includes both general background questionnaires given to participants in all subjects and subject-specific questionnaires for both students and their teachers. The development of the general background questionnaires is discussed below. It is worth noting that members of the Civics Instrument Development Committee were consulted on the appropriateness of the issues addressed in all questionnaires that may relate to civics instruction and achievement. Like the civics questions, all background questions were submitted for extensive review and field testing. Recognizing the validity problems inherent in self-reported data, particular attention was given to developing questions that were meaningful and unambiguous and that would encourage accurate reporting.

The 1998 assessment included two five-minute sets of general and civics background questions designed to gather contextual information about students and their instructional experiences in civics. Students in the fourth grade were given additional time for these sections (up to fifteen minutes per section), because the items in the general questionnaire were read aloud for them. A one-minute

questionnaire was also given to students at the end of each booklet to determine students' motivation in completing the assessment and their familiarity with assessment tasks.

22.8.1 Student Civics Questionnaires

Three sets of multiple-choice background questions were included as separate sections in each student booklet:

General Background: The general background questions collected demographic information about race/ethnicity, language spoken at home, mother's and father's level of education, reading materials in the home, homework, school attendance, which parents live at home, and which parents work outside the home.

Civics Background: Students were asked to report their instructional experiences related to civics including the amount of civics instruction they received and the topics they studied. In addition, they were asked about the instructional practices of their civics teachers including, for example, how often they used textbooks, discussed current events, and took part in classroom activities that simulated civic participation.

Motivation: Students were asked five questions about their attitudes and perceptions about reading and self-evaluation of their performance on the NAEP assessment.

Table 22-4 shows the number of questions per background section and notes the placement of each within student booklets.

Table 22-4
NAEP 1998 Background Sections of Student Civics Booklets

	Number of Questions	Placement in Student Booklet (of 5 Sections)
Grade 4		
General Background	21	Section 3
Civics Background	22	Section 4
Motivation	5	Section 5
Grade 8		
General Background	22	Section 3
Civics Background	24	Section 4
Motivation	5	Section 5
Grade 12		
General Background	24	Section 3
Civics Background	29	Section 4
Motivation	5	Section 5

22.8.2 Civics Teacher Questionnaire

To supplement the information on instruction reported by students, the civics teachers of the fourth and eighth graders participating in the NAEP civics assessment were asked to complete a questionnaire about their backgrounds, education, experience, and instructional practices. To make the

link between student data and teacher information as complete as possible, teachers were asked to provide information for *each class* containing an assessed student.

The **Teacher Questionnaire, Part I: Background, Education, and Resources** (49 questions at grade 4 and 47 at grade 8) included questions pertaining to:

- years of teaching experience;
- certification, degrees, major and minor fields of study;
- coursework in education;
- coursework in specific subject areas;
- amount of in-service training;
- extent of control over instructional issues; and
- availability of resources for their classroom.

The **Teacher Questionnaire, Part IIA: Civics Preparation** (7 questions at grade four and 7 at grade eight) included questions on the teacher's preparedness in various areas related to civics education, for example:

- preparedness in social studies instruction;
- preparedness in use of community resources in instruction;
- preparedness in using national standards for civics; and
- preparedness in using software for social studies.

The **Teacher Questionnaire, Part IIB: Civics Classroom Information** (33 questions at grade four and 32 at grade eight) included questions pertaining to:

- ability level of students in the class;
- whether students were assigned to the class by ability level;
- time on task;
- homework assignments;
- frequency of instructional activities used in class;
- methods of assessing student progress in civics;
- instructional emphasis given to the civics abilities covered in the assessment; and
- use of particular resources.

22.9 STUDENT BOOKLETS FOR THE 1998 CIVICS ASSESSMENT

Each student assessed in civics received a booklet containing two blocks of test questions, a five-minute section of general background questions, a five-minute section of civics background questions, a one-minute section of questions about his or her motivation and familiarity with the assessment materials, and content questions. The test questions were assembled into sections or blocks, each containing a range of questions covering the five knowledge categories.

The assembly of civics blocks into booklets and their subsequent assignment to sampled students was determined by a balanced incomplete block (BIB) design with spiraled administration. The civics blocks were assigned to booklets in such a way that every block was paired with every other block at least once. The BIB design balanced the order of presentation of the blocks of items so that every block appears as the first question block and as the second question block an equal number of times. This design allows for some reduction of the impact of context and fatigue effects to be measured and reported. The BIB design in Table 22-5 would call for 15 booklets to allow each of the six blocks to be paired with every other block. Three additional booklets (316-318) were added to ensure that each block appeared equally often in the first and second position. These booklets are the reverse of booklets 313-315.

Once assembled, the assessment booklets were then spiraled and packaged. Spiraling involves interweaving the booklets in a systematic sequence so that each booklet appears an appropriate number of times in the sample. The packages were designed so that each booklet would appear equally often in each position in a package.

The final step in the BIB-spiraling procedure was the assigning of the booklets to the assessed students. The students within an assessment session were assigned booklets in the order in which the booklets were bundled. Thus, most students in an assessment session received different booklets. Tables 22-5 through 22-7 detail the configuration of booklets administered in the 1998 civics assessment.

Table 22-5
NAEP 1998 Civics Grade 4 Booklet Configuration

Booklet Number	Question Block 1	Question Block 2	Common Core Background	Civics Background	Motivation
301	C3	C4	CW	PB	PA
302	C4	C5	CW	PB	PA
303	C5	C6	CW	PB	PA
304	C6	C7	CW	PB	PA
305	C7	C8	CW	PB	PA
306	C8	C3	CW	PB	PA
307*	C3	C5	CW	PB	PA
308	C4	C6	CW	PB	PA
309	C5	C7	CW	PB	PA
310	C6	C8	CW	PB	PA
311	C7	C3	CW	PB	PA
312	C8	C4	CW	PB	PA
313	C3	C6	CW	PB	PA
314	C4	C7	CW	PB	PA
315	C5	C8	CW	PB	PA
316	C6	C3	CW	PB	PA
317	C7	C4	CW	PB	PA
318	C8	C5	CW	PB	PA

* A large-type version of this booklet was administered as an accommodation to students who had a visual disability.

Table 22-6
NAEP 1998 Civics Grade 8 Booklet Configuration

Booklet Number	Question Block 1	Question Block 2	Common Core Background	Civics Background	Motivation
301	C3	C4	CW	PB	PA
302	C4	C5	CW	PB	PA
303	C5	C6	CW	PB	PA
304	C6	C7	CW	PB	PA
305	C7	C8	CW	PB	PA
306	C8	C9	CW	PB	PA
307	C9	C10	CW	PB	PA
308	C10	C3	CW	PB	PA
309	C3	C5	CW	PB	PA
310*	C4	C6	CW	PB	PA
311	C5	C7	CW	PB	PA
312	C6	C8	CW	PB	PA
313	C7	C9	CW	PB	PA
314	C8	C10	CW	PB	PA
315	C9	C3	CW	PB	PA
316	C10	C4	CW	PB	PA
317	C3	C6	CW	PB	PA
318	C4	C7	CW	PB	PA
319	C5	C8	CW	PB	PA
320	C6	C9	CW	PB	PA
321	C7	C10	CW	PB	PA
322	C8	C3	CW	PB	PA
323	C9	C4	CW	PB	PA
324	C10	C5	CW	PB	PA
325	C3	C7	CW	PB	PA
326	C4	C8	CW	PB	PA
327	C5	C9	CW	PB	PA
328	C6	C10	CW	PB	PA
329	C7	C3	CW	PB	PA
330	C8	C4	CW	PB	PA
331	C9	C5	CW	PB	PA
332	C10	C6	CW	PB	PA

* A large-type version of this booklet was administered as an accommodation to students who had a visual disability.

Table 22-7
NAEP 1998 Civics Grade 12 Booklet Configuration

Booklet Number	Question Block 1	Question Block 2	Common Core Background	Civics Background	Motivation
301*	C3	C4	CW	PB	PA
302	C4	C5	CW	PB	PA
303	C5	C6	CW	PB	PA
304	C6	C7	CW	PB	PA
305	C7	C8	CW	PB	PA
306	C8	C9	CW	PB	PA
307	C9	C10	CW	PB	PA
308	C10	C3	CW	PB	PA
309	C3	C5	CW	PB	PA
310	C4	C6	CW	PB	PA
311	C5	C7	CW	PB	PA
312	C6	C8	CW	PB	PA
313	C7	C9	CW	PB	PA
314	C8	C10	CW	PB	PA
315	C9	C3	CW	PB	PA
316	C10	C4	CW	PB	PA
317	C3	C6	CW	PB	PA
318	C4	C7	CW	PB	PA
319	C5	C8	CW	PB	PA
320	C6	C9	CW	PB	PA
321	C7	C10	CW	PB	PA
322	C8	C3	CW	PB	PA
323	C9	C4	CW	PB	PA
324	C10	C5	CW	PB	PA
325	C3	C7	CW	PB	PA
326	C4	C8	CW	PB	PA
327	C5	C9	CW	PB	PA
328	C6	C10	CW	PB	PA
329	C7	C3	CW	PB	PA
330	C8	C4	CW	PB	PA
331	C9	C5	CW	PB	PA
332	C10	C6	CW	PB	PA

* A large-type version of this booklet was administered as an accommodation to students who had a visual disability.

22.10 CIVICS SPECIAL TREND STUDY IN 1998

In 1998, NAEP conducted a special study designed to compare trends in civics proficiency between 1988 and 1998. Students participating in this special trend study were given booklets from the 1988 NAEP civics assessment. Because the questions in the trend study were based on the 1988 framework, the results cannot be linked to 1998 national assessment results. At the fourth grade level, 2,087 student participated. For grades 8 and 12 the number of students participating totaled 2,053 and 2,181, respectively. Differences in mean item scores for the 1988 booklet were calculated. Results from this special trend study appear in a separate report (Weiss et al., 2000).

Chapter 23

INTRODUCTION TO THE DATA ANALYSIS FOR THE CIVICS ASSESSMENT¹

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23.1 INTRODUCTION

This chapter gives an introduction to the analyses performed on the responses to the cognitive and background items in the 1998 assessment of civics. These analyses led to the results presented in the *NAEP 1998 Civics Report Card for the Nation* (Lutkus et al., 1999). This chapter describes the student samples, items, assessment booklets, administrative procedures, student weights, and the process used in scoring constructed-response items, as well as the methods and results of differential item functioning (DIF) analyses. The major analysis components are discussed in Chapter 24.

The objectives of the civics analyses were to prepare scale values and estimate subgroup scale score distributions for samples of students who were administered civics items from the national main assessment.

23.2 DESCRIPTION OF STUDENT SAMPLES, ITEMS, ASSESSMENT BOOKLETS, AND ADMINISTRATIVE PROCEDURES

The student samples that were administered civics items in the 1998 assessment are shown in Table 23-1. The data from the national main focused balanced in completed block (BIB) assessment (see Section 1.5) of civics (4 [Civics-Main], 8 [Civics-Main], and 12 [Civics-Main]) were used for national main analyses comparing the levels of civics achievement for various subgroups of the 1998 target populations. Chapters 1 and 3 contain descriptions of the target populations and the sample design used for the assessment. The target populations were grade 4, grade 8, and grade 12 students in the United States. (See Appendix A for tables describing the students assessed and the reporting sample for each component of the civics assessment).

The items in the assessment were based on the framework described in *Civics Framework for the National Assessment of Educational Progress* (NAGB, 1996a). Five areas are described in the civics framework, and were used in developing the assessment questions. For purposes of scaling, all items were fit to a single scale.

In the national main samples, each student was administered a booklet containing two separately timed 25-minute blocks of cognitive civics items. In addition, each student was administered a block of background questions, a block of civics-related background questions, and a block of questions concerning the student's motivation and his or her perception of the difficulty of the cognitive items; these blocks were common to all civics booklets for a particular grade level. Eight 25-minute blocks of

¹ Spencer S. Swinton was the primary person responsible for the planning, specification, and coordination of the civics analyses. Computing activities for all civics scaling and data analyses were directed by Edward Kulick and completed by Venus Leung. Others contributing to the analysis of civics data were David S. Freund, Bruce A. Kaplan, and Katharine E. Pashley.

civics items were administered at grade 4, and 10 at each of grades 8 and 12. As described in Chapter 22, the 25-minute blocks were combined into booklets according to a BIB design. See Chapter 22 for more information about the blocks and booklets.

At each grade, two civics blocks were repeated from the 1988 assessment of citizenship and social studies to provide data for a special trend study. These items were not scaled with the national main civics assessment items, but were reported using a mean percent-correct metric. The results are reported in *The Next Generation of Citizens: NAEP Trends in Civics, 1988 to 1998* (Weiss, Lutkus, Grigg, & Niemi, 2000).

The mean percent-correct metric involves the percent of people who answered the item correctly. Since all students in the civics trend special study took all items, it was possible to report results for single items and subsets of items by demographic groups. In contrast, the main civics items were scaled using item response theory (IRT). IRT scaling provides parameters that describe the overall difficulty and discrimination of the item. The scale score metric defined by IRT makes comparisons possible across assessments, even if different students took different items.

Table 23-1
NAEP 1998 National Main Civics Assessment Student Samples

Sample	Booklet ID Number*	Cohort Assessed	Time of Testing[†]	Reporting Sample Size
4 [Civics–Main]	C301-C318	Grade 4	1/5/98 – 3/27/98	5,948
8 [Civics–Main]	C301-C332	Grade 8	1/5/98 – 3/27/98	8,212
12 [Civics–Main]	C301-C332	Grade 12	1/5/98 – 3/27/98	7,763

* Common labeling of booklet numbers across grade levels does not denote common items (e.g., Booklet C301 at grade 8 does not contain the same items as Booklet C301 at grade 12).

[†] Final makeup sessions were held March 30–April 3, 1998.

The total number of scaled items in the main civics assessments was 89, 149, and 151, respectively, for grades 4, 8, and 12. Note that some items overlap across grade. Table 23-2 shows the numbers of items within civics purpose subscales for each grade—both for the original item pool, and after the necessary adjustments were made during scaling.

The composition of each block of items by item type is given in Tables 23-3, 23-5, and 23-7. Common labeling of these blocks across grade levels does not necessarily denote common items (e.g., Block C3 at grade 4 does not contain the same items as Block C3 at grade 8). The numbers of items scaled in 1998 for each grade are presented in Tables 23-4, 23-6, and 23-8.

Table 23-2
Number of Items in the National Main Civics Assessment by Content Area

Grade		Content Areas					Total
		1	2	3	4	5	
4	Prescaling	19	17	16	8	30	90
	Postscaling	19	16	16	8	30	89
8	Prescaling	19	35	44	22	31	151
	Postscaling	18	35	43	22	31	149
12	Prescaling	14	29	43	30	37	152
	Postscaling	14	29	43	29	37	151

CONTENT-AREA LEGEND

1	What are civic life, politics, and government?
2	What are the foundations of the U.S. political system?
3	How does the government established by the Constitution embody the purposes, values, and principles of U.S. democracy?
4	What is the relationship of the United States to other nations and to world affairs?
5	What are the roles of citizens in U.S. democracy?

Table 23-3
*1998 NAEP Civics Block Composition
As Defined Before Scaling, Grade 4*

Block	Multiple-Choice Items	Constructed-Response Items Scored			Total Items
		Polytomously			
		2-category*	3-category	4-category	
Total	69	0	15	6	90
C3	11	0	3	1	15
C4	11	0	4	0	15
C5	12	0	2	1	15
C6	12	0	3	0	15
C7	11	0	1	3	15
C8	12	0	2	1	15

* For a small number of constructed-response items, adjacent categories were combined.

Table 23-4
*1998 NAEP Civics Block Composition
After Scaling, Grade 4*

Block	Multiple-Choice Items	Constructed-Response Items Scored			Total Items
		Polytomously			
		2-category*	3-category	4-category	
Total	68	1	15	5	89
C3	11	0	3	1	15
C4	11	1	3	0	15
C5	12	0	2	1	15
C6	12	0	3	0	15
C7	11	0	2	2	15
C8	11	0	2	1	14

* For a small number of constructed-response items, adjacent categories were combined.

Table 23-5
1998 NAEP Civics Block Composition
As Defined Before Scaling, Grade 8

Block	Multiple-Choice Items	Constructed-Response Items Scored			Total Items
		Polytomously			
		2-category*	3-category	4-category	
Total	123	0	22	6	151
C3	15	0	4	0	19
C4	16	0	1	2	19
C5	15	0	4	0	19
C6	15	0	4	0	19
C7	15	0	3	1	19
C8	16	0	2	1	19
C9	16	0	2	1	19
C10	15	0	2	1	18

*For a small number of constructed-response items, adjacent categories were combined.

Table 23-6
1998 NAEP Civics Block Composition
After Scaling, Grade 8

Block	Multiple-Choice Items	Constructed-Response Items Scored			Total Items
		Polytomously			
		2-category*	3-category	4-category	
Total	121	1	21	6	149
C3	15	0	4	0	19
C4	16	0	1	2	19
C5	14	0	4	0	18
C6	15	1	3	0	19
C7	15	0	3	1	19
C8	15	0	2	1	18
C9	16	0	2	1	19
C10	15	0	2	1	18

*For a small number of constructed-response items, adjacent categories were combined.

Table 23-7
1998 NAEP Civics Block Composition
As Defined Before Scaling, Grade 12

Block	Multiple-Choice Items	Constructed-Response Items Scored			Total Items
		Polytomously			
		2-category*	3-category	4-category	
Total	123	0	23	6	152
C3	15	0	3	1	19
C4	16	0	3	0	19
C5	15	0	3	1	19
C6	16	0	3	0	19
C7	15	0	2	2	19
C8	15	0	4	0	19
C9	16	0	2	1	19
C10	15	0	3	1	19

*For a small number of constructed-response items, adjacent categories were combined.

Table 23-8
1998 NAEP Civics Block Composition
After Scaling, Grade 12

Block	Multiple-Choice Items	Constructed-Response Items Scored			Total Items
		Polytomously			
		2-category*	3-category	4-category	
Total	122	1	22	6	151
C3	15	0	3	1	19
C4	16	0	3	0	19
C5	15	1	2	1	19
C6	15	0	3	0	18
C7	15	0	2	2	19
C8	15	0	4	0	19
C9	16	0	2	1	19
C10	15	0	3	1	19

* For a small number of constructed-response items, adjacent categories were combined.

23.3 SCORING CONSTRUCTED-RESPONSE ITEMS

In addition to multiple-choice items, each block contained a number of constructed-response items, accounting for 47 percent of testing time in grade 4 and 39 percent of testing time in grades 8 and 12. Constructed-response items were scored by specially trained readers. (Chapter 7 describes scoring procedures and ranges of interrater reliability for constructed-response items.) Some of the constructed-response items required only a few sentences or a paragraph response. These short constructed-response items were scored dichotomously as correct or incorrect. Other constructed-response items required somewhat more elaborated responses, and were scored polytomously on a 3-point (0–2) scale:

- 0 = Unsatisfactory (and omit)
- 1 = Partial
- 2 = Complete

In addition, most blocks contained at least one constructed-response item that required a more in-depth, elaborated response. These items were scored polytomously on a 4-point (0–3) scale:

- 0 = Unsatisfactory (and omit)
- 1 = Partial
- 2 = Essential
- 3 = Extensive, which demonstrates more in-depth understanding

Adjacent categories of a small number of constructed-response items were combined (collapsed). These changes were made so that the scaling model used for these items fit the data more closely, and are described more fully in Chapter 12.

23.4 DIF ANALYSIS

A differential item functioning (DIF) analysis of items was done to identify potentially biased items that were differentially difficult for members of various subgroups with comparable overall scores.

Sample sizes were large enough to compare male and female students, White and Black students, and White and Hispanic students. Table A-9 of Appendix A specifies the sample size for each of these groups. The purpose of the analysis was to identify items that should be examined more closely by a committee of trained test developers and subject-matter specialists for possible bias and consequent exclusion from the assessment. The presence of DIF in an item means that the item is differentially harder for one group of students than another, while controlling for the ability level of the students. DIF analyses were conducted separately by grade for national samples.

For dichotomous items, the Mantel-Haenszel procedure as adapted by Holland and Thayer (1988) was used as a test of DIF (this is described in Chapter 9). The Mantel procedure (Mantel, 1963) was used for detection of DIF in polytomous items and also as described by Zwick, Donoghue, and Grima (1993). This procedure assumes ordered categories.

For dichotomous items, the DIF index generated by the Mantel-Haenszel procedure is used to place items into one of three categories: “A,” “B,” or “C.” “A” items exhibit little or no DIF, while “C” items exhibit a strong indication of DIF and should be examined more closely. Positive values of the index indicate items that are differentially easier for the focal group (female, Black, or Hispanic students) than for the reference groups (male or White students). Similarly, negative values indicate items that are differentially harder for the focal group than the reference group. An item that was classified as a “C” item in *any* analysis was considered to be a “C” item.

For polytomous items (regular constructed-response items and extended constructed-response items), the Mantel statistic provides a statistical test of the hypothesis of no DIF. A categorization similar to that described for dichotomous items was developed to classify items (this is discussed in detail in Donoghue, 2000). Polytomous items were placed into one of three categories: “AA”, “BB”, or “CC” similar to dichotomous items. “AA” items exhibit no DIF, while “CC” items exhibit a strong indication of DIF and should be examined more closely. The classification criterion for polytomous items is presented in Donoghue (2000). As with dichotomous items, positive values of the index indicate items that are differentially easier for the “focal” group (female, Black, or Hispanic students) than for the reference group (male or White students). Similarly, negative values indicate items that are differentially harder for the focal group than for the reference group. An item that was classified as a “CC” item in *any* analysis was considered to be a “CC” item.

Table 23-9 summarizes the results of DIF analyses for dichotomously scored items. One C item was identified in grade 4, 2 in grade 8, and 3 in grade 12. The committee decided that only the C item in grade 8 showed evidence of bias. The item tested for understanding that the rights of United States citizens date back to the Constitution and Bill of Rights, but used a World War II poster as a stimulus. It was judged that the concept being tested did not require a military theme, making it unnecessarily more difficult for females. Note that if the concept in the framework being assessed had *required* a military context, the same performance differential would not necessarily have resulted in the dropping of the item.

Table 23-9
DIF Category by Grade for Dichotomous Civics Items

Grade	DIF Category *	Analysis		
		Male/Female	White/Black	White/Hispanic
4	C-	0	0	0
	B-	3	5	0
	A-	31	30	29
	A+	35	30	37
	B+	0	3	3
	C+	0	1	0
8	C-	1	0	0
	B-	5	4	2
	A-	70	51	52
	A+	46	58	65
	B+	1	10	3
	C+	0	0	1
12	C-	0	0	0
	B-	14	6	4
	A-	49	45	46
	A+	55	65	68
	B+	4	5	5
	C+	1	2	0

* Positive values of the index indicate items that are differentially easier for the focal group (female, Black, or Hispanic students) than for the reference groups (male or White students). "A+" or "A-" means no indication of DIF, "B+" means a weak indication of DIF in favor of the focal group, "B-" means a weak indication of DIF in favor of the reference group and "C+" or "C-" means a strong indication of DIF.

Table 23-10
DIF Category by Grade for Polytomous Civics Items

Grade	DIF Category *	Analysis		
		Male/Female	White/Black	White/Hispanic
4	CC-	0	0	0
	BB-	0	2	0
	AA-	7	9	10
	AA+	14	9	11
	BB+	0	1	0
	CC+	0	0	0
8	CC-	0	0	0
	BB-	1	1	2
	AA-	5	13	11
	AA+	16	13	15
	BB+	5	1	0
	CC+	1	0	0
12	CC-	0	3	0
	BB-	0	2	1
	AA-	6	10	12
	AA+	21	13	14
	BB+	2	0	2
	CC+	0	1	0

* Positive values of the index indicate items that are differentially easier for the focal group (female, Black, or Hispanic students) than for the reference groups (male or White students). "AA+" or "AA-" means no indication of DIF, "BB+" means a weak indication of DIF in favor of the focal group, "BB-" means a weak indication of DIF in favor of the reference group, and "CC+" or "CC-" means a strong indication of DIF.

In addition to the Mantel-Haenszel DIF procedure, a second bias test was performed using a SIBTEST analysis (Shealy & Stout, 1993). This analysis identified essentially the same items as were flagged by the other DIF procedure.

23.5 THE WEIGHT FILES

To include special-needs students in its assessment, NAEP test developers established accommodations or adaptations of test forms for students with disabilities (SD) and those characterized as having limited English proficiency (LEP). Inclusion criteria for these students were developed by the Department of Education in consultation with a number of other federal government offices. Its goal was to achieve optimal inclusion of students with disabilities and increase the salience of subject-related instructional matters in inclusion decisions.

For the 1998 civics assessments, the sampling contractor Westat produced the final student and school weights and the corresponding replicate weights. Information for the creation of the weight files was supplied by National Computer Systems (NCS) under the direction of Educational Testing Service (ETS).

Chapter 24

DATA ANALYSIS FOR THE CIVICS ASSESSMENT¹

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24.1 INTRODUCTION

This chapter describes the analyses performed on the responses to the cognitive and background items in the 1998 assessment of civics. The focus of this chapter is on the methods and procedures used to estimate scale score distributions for subgroups of students. This includes a wide array of topics, such as the scoring of constructed-response items, classical item statistics, item response theory (IRT) analysis of civics scales, and estimation of subgroup means by the imputation of plausible values. The statistical bases of the IRT and plausible values methodology described in this chapter are given in Chapter 12. These analyses serve as a basis for the results presented in *NAEP 1998 Civics Report Card for the Nation* (Lutkus et al., 1999).

The student samples that were administered civics items in the 1998 national assessment were shown in Table 23-1. (See Chapters 1 and 3 for descriptions of the target populations and the sample design used for the assessment.) These samples were defined only by grade (4, 8, or 12) and not by age of the student. Data from the samples denoted (Civics–Main) comprised the spiraled partially balanced incomplete block design (spiral BIB design, described in Chapter 22) and the present chapter contains information about the scaling of data from these samples. The analyses for the special trend study of 1988–1998 civics will be published in a separate report through the National Center for Education Statistics (NCES).

24.2 ITEM ANALYSIS

This section contains a detailed description of the item analysis performed using sample data. The analysis examines items within blocks. In preparation for this step, constructed-response items were polytomously scored, and derived background variables were calculated. Item statistics such as mean percent correct, average score, item to total score correlations, and percent responding in each item category were calculated.

Tables 24-1, 24-2, and 24-3 show the number of scaled items, number of constructed-response items, unweighted sample size, weighted mean item score, weighted alpha reliability, weighted mean item to total score correlation, and the weighted proportion of students attempting the last item in the block for each block administered at each grade level for the national main assessment for grades 4, 8, and 12, respectively. These values were calculated within block only for those items used in the scaling process. For these item analyses, accommodated students were excluded, because they were not evenly distributed across items; all of the accommodated students in a grade received the same two blocks. Because of the concentration in these blocks of accommodated students, who are generally lower-scoring, inclusion of the accommodated students in the data for these blocks would have made these

¹ Spencer S. Swinton was the primary person responsible for the planning, specification, and coordination of the civics analyses. Computing activities for all civics scaling and data analyses were directed by Edward Kulick and completed by Venus Leung. Others contributing to the analysis of civics data were David S. Freund, Bruce A. Kaplan, and Katharine E. Pashley.

items appear more difficult than they would have in other blocks. Student weights were used, except for the sample sizes. The results for the blocks administered to each grade level indicated that despite nearly identical numbers of items, the blocks differ in average difficulty (i.e., weighted average item score [Block C4=.48 – Block C7=.55]), reliability (i.e., weighted alpha reliability [Block C8=.68 – Block C3=.74]), and proportion reaching the last item (Block C3=.84 – Block C6=.93]). Note that these tables are descriptive, since no significance tests of differences were done.

As described in Chapter 9, in NAEP analyses (both conventional and IRT-based) a distinction is made between missing responses at the end of each block (not-reached) and missing responses prior to the last completed response (omitted). Not-reached items are those occurring after the last item the student completed in a block. Items that were not reached are treated as if they had not been presented to the examinee, while omitted items are regarded as incorrect.

The r-polyserial is a generalization of the r-biserial statistic traditionally employed in item analysis. Like the alpha reliability, the r-biserial and r-polyserial statistic provides information about the reliability of the block of items. Smaller values are less desirable than large values. The proportion of students attempting the last item of a block (or, equivalently, one minus the proportion not reaching the last item) is often used as an index of the degree of speededness of the block of items.

Tables 24-1 to 24-3 also contain information about the effect of the position of blocks within booklets on the average item score for items within each block presented to the national main samples for each grade. Because the special trend study 1988–1998 blocks appeared in only one position, they are not included in these tables. The averages for the national main samples show that the order of blocks within booklets has a small, but consistent, effect on mean item score in the national main civics assessment.

Table 24-1
Descriptive Statistics for Item Blocks by Position Within Test Booklet and Overall Occurrences for the National Main Civics Sample, Grade 4, As Defined After Scaling

Statistic	Position	C3	C4	C5	C6	C7	C8
Number of Scaled Items		15	15	15	15	15	14
Number Constructed-Response Items		4	4	3	3	4	3
Unweighted Sample Size	First	942	921	984	965	975	946
	Second	985	904	947	938	969	971
	Both	1,927	1,825	1,931	1,903	1,944	1,917
Weighted Average Item Score	First	.53	.50	.51	.55	.56	.51
	Second	.52	.47	.48	.53	.54	.50
	Both	.52	.48	.49	.54	.55	.50
Weighted Alpha Reliability	First	.73	.73	.72	.69	.69	.68
	Second	.75	.72	.71	.70	.71	.68
	Both	.74	.72	.71	.70	.70	.68
Weighted Average R-Polyserial*	First	.52	.54	.54	.54	.50	.48
	Second	.56	.55	.55	.55	.54	.51
	Both	.54	.55	.54	.55	.52	.50
Weighted Proportion of Students Attempting Last Item	First	.77	.86	.83	.93	.87	.82
	Second	.91	.91	.90	.94	.92	.93
	Both	.84	.88	.86	.93	.90	.88

Table 24-2
Descriptive Statistics for Item Blocks by Position Within Test Booklet and Overall Occurrences for the National Main Civics Sample, Grade 8, As Defined After Scaling

Statistic	Position	C3	C4	C5	C6	C7	C8	C9	C10
Number of Scaled Items		19	19	18	19	19	18	19	18
Number Constructed-Response Items		15	16	14	15	15	15	16	15
Unweighted Sample Size	First	1,000	980	981	1,002	993	1,021	994	1,009
	Second	1,003	1,012	992	1,009	974	975	1,000	997
	Both	2,003	1,992	1,973	2,011	1,967	1,996	1,994	2,006
Weighted Average Item Score	First	.50	.44	.47	.56	.49	.56	.53	.49
	Second	.47	.43	.46	.54	.47	.55	.51	.47
	Both	.48	.44	.47	.55	.48	.55	.52	.48
Weighted Alpha Reliability	First	.77	.78	.75	.77	.71	.72	.74	.69
	Second	.76	.77	.76	.77	.73	.73	.76	.71
	Both	.76	.77	.75	.77	.72	.73	.75	.70
Weighted Average R-Polyserial	First	.53	.57	.53	.55	.48	.51	.53	.48
	Second	.53	.55	.54	.54	.50	.52	.55	.50
	Both	.53	.56	.53	.55	.49	.52	.54	.49
Weighted Proportion of Students Attempting Last Item	First	.88	.94	.90	.95	.82	.93	.96	.91
	Second	.93	.94	.92	.96	.90	.96	.98	.94
	Both	.90	.94	.91	.95	.86	.94	.97	.92

Table 24-3
Descriptive Statistics for Item Blocks by Position Within Test Booklet and Overall Occurrences for the National Main Civics Sample, Grade 12, As Defined After Scaling

Statistic	Position	C3	C4	C5	C6	C7	C8	C9	C10
Number of Scaled Items		19	19	19	18	19	19	19	19
Number Constructed-Response Items		15	16	15	15	15	15	16	15
Unweighted Sample Size	First	988	970	929	940	922	957	951	974
	Second	931	976	924	996	947	928	955	944
	Both	1,919	1,946	1,853	1,936	1,869	1,885	1,906	1,918
Weighted Average Item Score	First	.54	.56	.53	.57	.50	.51	.54	.58
	Second	.51	.53	.51	.55	.49	.48	.52	.55
	Both	.53	.54	.52	.56	.50	.50	.53	.57
Weighted Alpha Reliability	First	.83	.75	.79	.75	.77	.72	.76	.79
	Second	.85	.77	.81	.76	.79	.75	.78	.79
	Both	.84	.76	.80	.76	.78	.74	.77	.79
Weighted Average R-Polyserial	First	.61	.54	.54	.54	.54	.48	.55	.56
	Second	.63	.54	.57	.54	.55	.51	.55	.56
	Both	.62	.54	.56	.54	.55	.50	.55	.56
Weighted Proportion of Students Attempting Last Item	First	.87	.95	.76	.94	.88	.86	.96	.86
	Second	.91	.95	.85	.92	.90	.91	.94	.93
	Both	.89	.95	.80	.93	.89	.89	.95	.89

In grades 4 and 8, and in most grade 12 blocks, the proportion of students attempting the last item is higher for blocks in the second position. This suggests that students learn to pace themselves better as they go through the assessment. Since slower students are more likely to be somewhat lower-scoring, if more of them run out of time in the first block and do not attempt the final items, they will not contribute to those item statistics, which will be based on a group of relatively more able individuals. This will make the average item appear somewhat easier in the first position than in the second.

24.2.1 Constructed-Response Items

As indicated previously in Tables 23-3, 23-5, and 23-7, about 20 percent of the civics items were constructed-response. Constructed-response items were scored in 3 or 4 categories. The categories of responses for the items and the number of responses that were rescored for each item are indicated in Appendix C. The percent agreement for the raters and the intraclass correlation, a rater reliability estimate appropriate for items with several categories, are also given in the appendix. The sample sizes listed in the tables correspond to the samples used in calculating the rater reliability.

In general, the rater reliability of the scoring for dichotomized responses was reasonably high. Reliabilities ranged over items from 0.69 to 0.96 for grade 4, mean 0.82; from 0.50 to 0.94 for grade 8, mean 0.80; and from 0.61 to 0.90 for grade 12, mean 0.78. The item in grade 8 with unusually low scorer reliability, P040903, was a 3-category item requiring the student to explain characteristics of a good representative.

Chapter 7 discusses the definition of the item ratings and describes the process by which teams of raters scored the constructed-response items. This discussion includes the rating definitions for short and extended constructed-response items as well as the range of interrater reliabilities that occurred. Constructed-response items were scored on a scale from 1 to 4 or 1 to 3 to reflect degrees of knowledge. In scaling, this scale is shifted to 0 to 3 or 0 to 2, respectively. Rating information on constructed-response items can be found in Appendix C, which lists the sample sizes, percent agreement, and Cohen's Kappa reliability index. No items were excluded because of low rater reliabilities.

24.3 ITEM RESPONSE THEORY (IRT) SCALING

For each grade, a separate univariate IRT scale was constructed. The BILOG/PARSCALE computer program was used to estimate the item parameters for the national main assessment. For dichotomous multiple-choice and dichotomized constructed-response items, a three-parameter IRT model was used. Three- and four-category items were polytomously scored and were analyzed with a generalized partial-credit model (Muraki, 1992).

Recall from Section 24.2 that for calibration, item responses that were missing prior to the last completed item in a block were considered omitted and scored as wrong. Also, items that were not reached were treated as if they were not presented to the examinees (and therefore, not counted as wrong). Omitted multiple-choice items were treated as fractionally $[1 / (\text{number of alternatives})]$ correct. Responses to constructed-response items that were classified by scorers as "off-task" (not responsive to the question) were treated as omitted and assigned to the lowest category (0 = omitted). For score-point descriptions, see Section 15.3; for details on scaling procedures, see Section 12.3.1.

The item parameter estimation was done separately within grade, with accommodated student responses included as a separate population. Empirical Bayes modal estimates of all item parameters were obtained from the BILOG/PARSCALE program. Prior distributions were imposed on item

parameters with the following starting values: thresholds, normal [0,2]; slopes, log-normal [0,.5]; and asymptotes, two-parameter beta with parameter values determined as functions of the number of response options for an item and a weight factor of 50. The locations (but not the dispersions) were updated at each program estimation cycle in accordance with provisional estimates of the item parameters.

Item parameter estimation proceeded in two phases. First, the subject ability distribution was assumed fixed (normal [0,1]) and a stable solution was obtained. Starting values for the item parameters were provided by item analysis routines. The parameter estimates from this initial solution were then used as starting values for a subsequent set of runs in which the subject ability distribution was freed (modeled as a multinomial distribution) and estimated concurrently with item parameter estimates. After each estimation cycle, the subject ability distribution was standardized to have a mean of zero and standard deviation of one. Correspondingly, parameter estimates for that cycle were also linearly standardized.

In the final BILOG/PARSCALE run, the prior distributions of the population abilities were free to be estimated and the overall distribution was set to range from -6 to +4. The calibration was based on student weights that were rescaled so that their sum equaled the unweighted sample size of the 1998 sample. The weights of accommodated students were further rescaled so that for a given item from the accommodation blocks, the proportion of responses from accommodated students was made similar to their proportion in the weighted sample. As a result, the sum of population weights for accommodated students is smaller than the sum of population weights for nonaccommodated students.

Items that received special treatment in the scaling procedure are listed in Table 24-4, along with the reason for special treatment. Items were either dropped or collapsed. If items had empirical item response functions that were severely nonmonotonic, they were dropped. If polytomous items had sparse or nonmonotonic responses in one or more categories, the items were collapsed so that some adjacent response categories were combined into a single category. Only eight of the total items were given special treatment.

Table 24-4
1998 Civics Items Receiving Special Treatment

Grade	NAEP ID	Block	Treatment
4	P040102	C4	Collapsed: (0,1,2) becomes (0,0,1)
	P040402	C7	Collapsed: (0,1,2,3) becomes (0,0,1,2)
	P040506	C8	Dropped due to lack of fit
8	P040905	C5	Dropped due to DIF
	P041003	C6	Collapsed: (0,1,2) becomes (0,0,1)
	P041204	C8	Dropped due to lack of fit
12	P041705	C5	Collapsed: (0,1,2) becomes (0,1,1)
	P041810	C6	Dropped due to lack of fit

24.3.1 Evaluating the Fit of the IRT Model

During the course of estimating an IRT model, individual items were evaluated to determine how well the item response model fit the data. This was done by visual inspection of plots comparing empirically based and theoretical item response functions. Specifically, for dichotomous items these plots consisted of empirically based estimates of the expected proportion correct for each level of civics performance compared to the proportion correct for each level of civics scale score as predicted by the theoretical item response function. For polytomous extended constructed-response items, similar plots

were produced for each item category response function. See Chapter 12 for a fuller explanation of these plots.

In making decisions about excluding items from the final scales, a balance was sought between being too stringent, hence deleting too many items and possibly damaging the content representativeness of the pool of scaled items, and being too lenient, hence including items with model fit so poor as to weaken the types of model-based inferences made from NAEP results. Items showing extreme misfit were not included in the final scales; however, a certain degree of misfit was tolerated for a number of items included in the final scales.

For most items, the model fit reasonably well in the scale score region containing most of the observations. In a few cases, poor fit with the data led to special treatment or deletion of the item. Figures 24-1, 24-3, and 24-5 give item response plots of dichotomous items. In the plots, the x -axis depicts scale score (theta), and the y -axis the probability of a correct response. The solid line is the logistic model prediction, and the symbols (diamonds) are the empirically based proportions. The size of the symbols are proportional to the estimated number of students at a particular scale score level. The item parameter values are also included in the plot.

Item response plots for polytomously scored items are given in Figures 24-2, 24-4, 24-6, and 24-7. These are similar to the plots for dichotomous items except that there are several solid lines, one for each item category, with each line indicating the probability of responding in the respective item category. As before, the diamonds indicate the empirical response function, with the size of the symbols proportional to the estimated number of students at a scale score level.

In the plots, good fit of the model to the data is indicated when the model-based functions (solid lines) coincide with the empirical functions (diamonds). When the empirical plot is far away from the model-based line, there is poor fit of the model to the data.

Four examples of fit are illustrated. First there is good model fit, which is shown by Figure 24-1 for a dichotomous item and Figure 24-2 for a polytomous item. In both cases empirical and theoretical lines nearly coincide.

Second are examples of items that displayed moderate lack of fit to the theoretical function. Figure 24-3 shows a dichotomous item and Figure 24-4 a polytomous item with moderate model misfit.

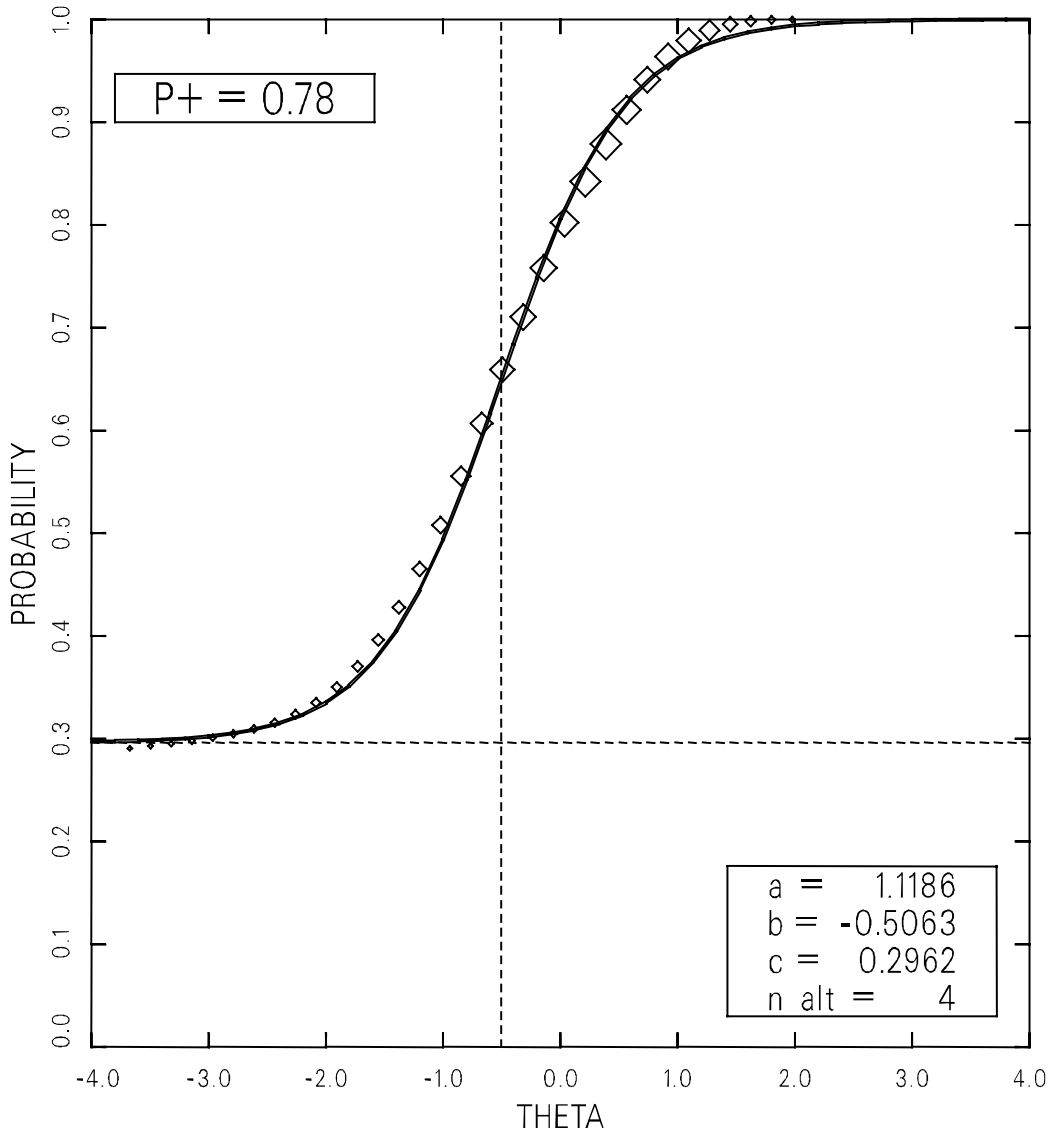
Third (Figure 24-5) is an example of a dichotomous item exhibiting unacceptably poor model fit. This item was dropped from the assessment. This item asked the student to identify a function of a nongovernmental organization.

The fourth example is of a poorly fitting polytomous item that was modified by collapsing categories. Figure 24-6 shows a 4-category item that evidences poor fit mostly in the lower categories. As a result, the lower two categories were collapsed, resulting in a 3-category item, as illustrated in Figure 24-7. This plot still exhibits some degree of misfit, but was judged to fit satisfactorily to be included in the scale. This item asked the student to write on the contrast between a rule and a law.

24.3.2 Derived Background Variables

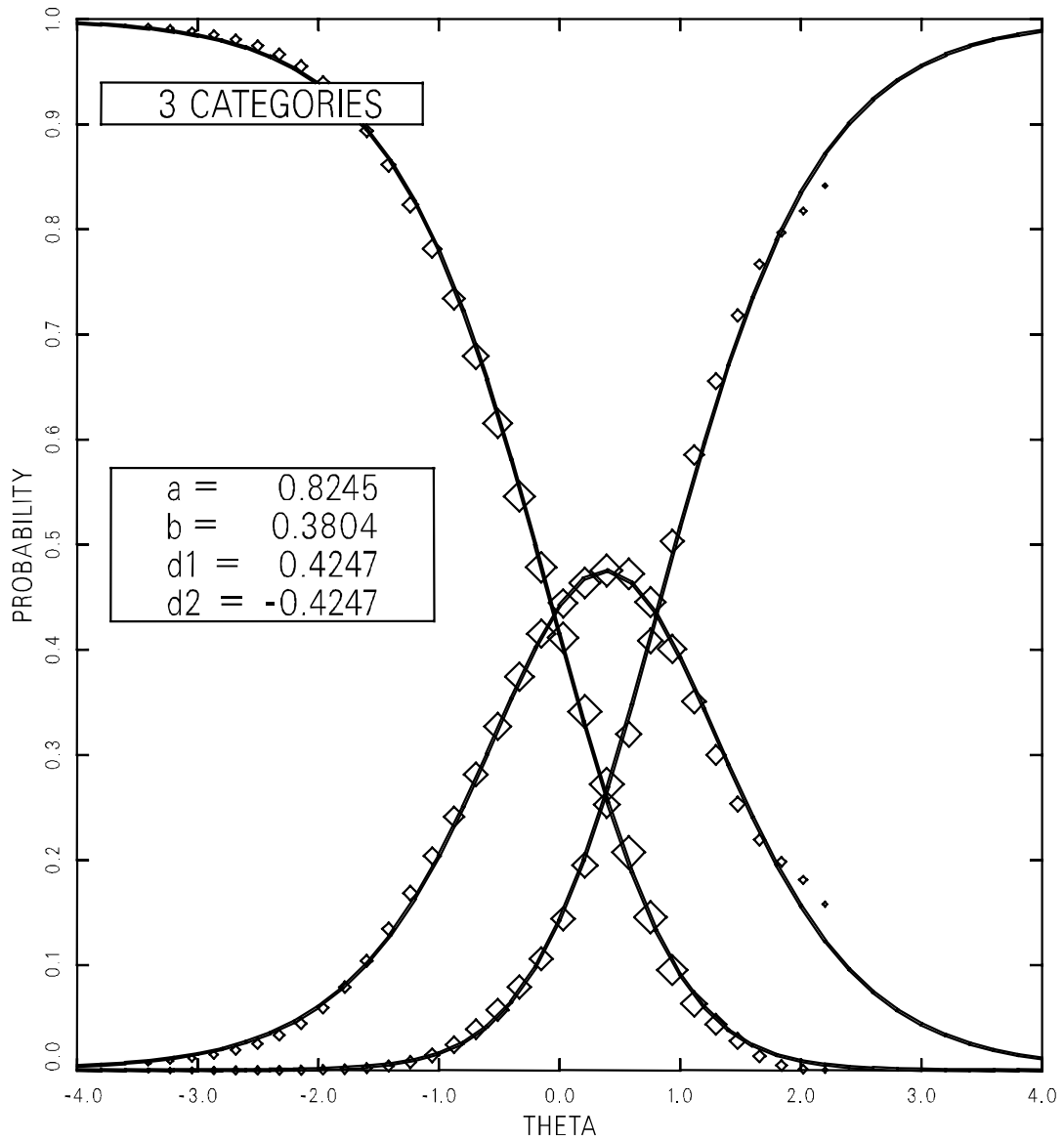
Derived variables are variables that use information from more than one background question. They were used for two purposes: as conditioning variables and as reporting variables used to define subgroups. Some of these variables are common to all the subject areas; others are specific to the 1998 civics assessment. Derived variables used for conditioning and reporting are described in Appendix G.

Figure 24-1
*Dichotomous Item (P040719) Exhibiting Good Model Fit**



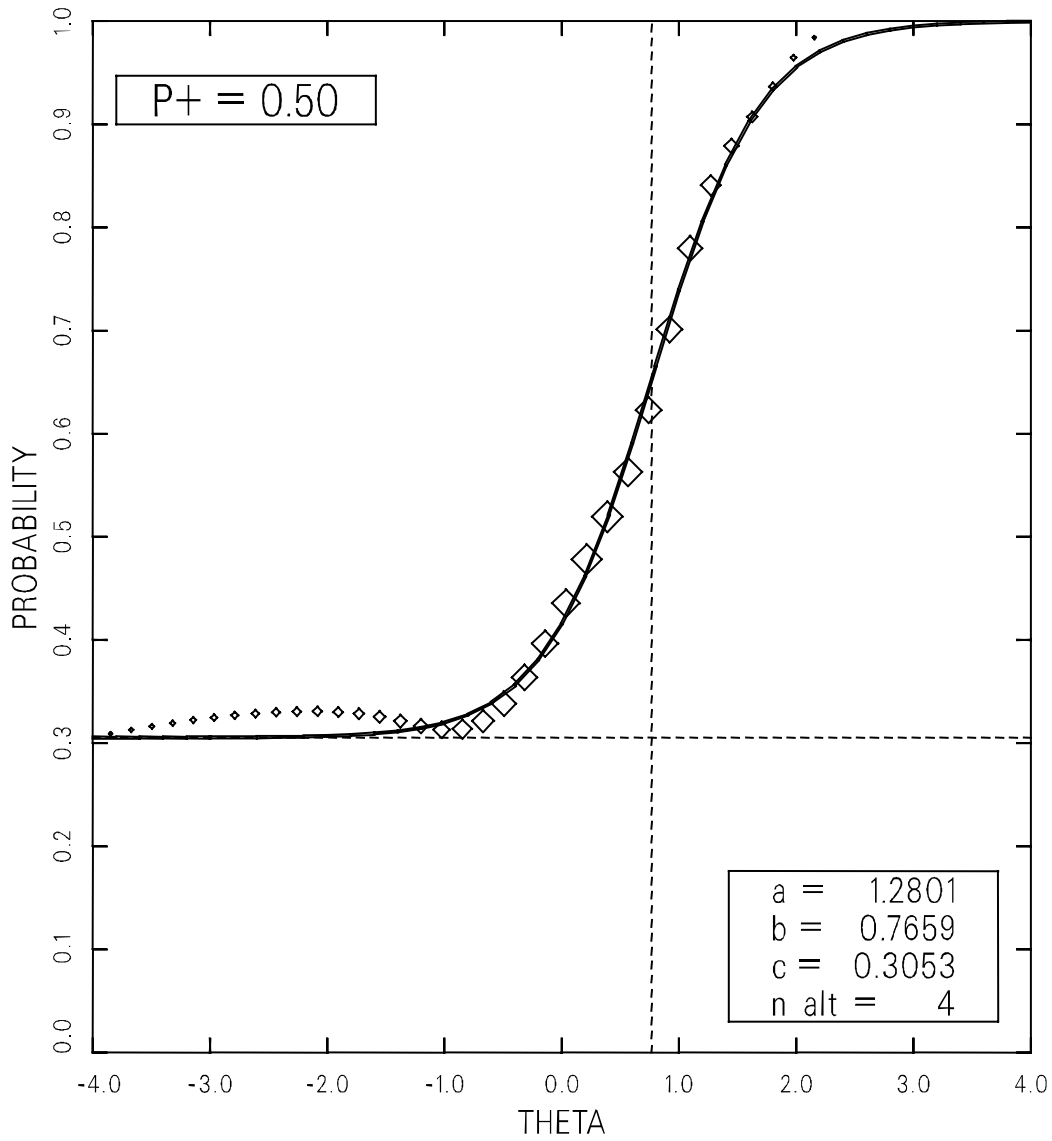
* Diamonds represent 1998 grade 12 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

Figure 24-2
*Polytomous Item (P042008) Exhibiting Good Model Fit**



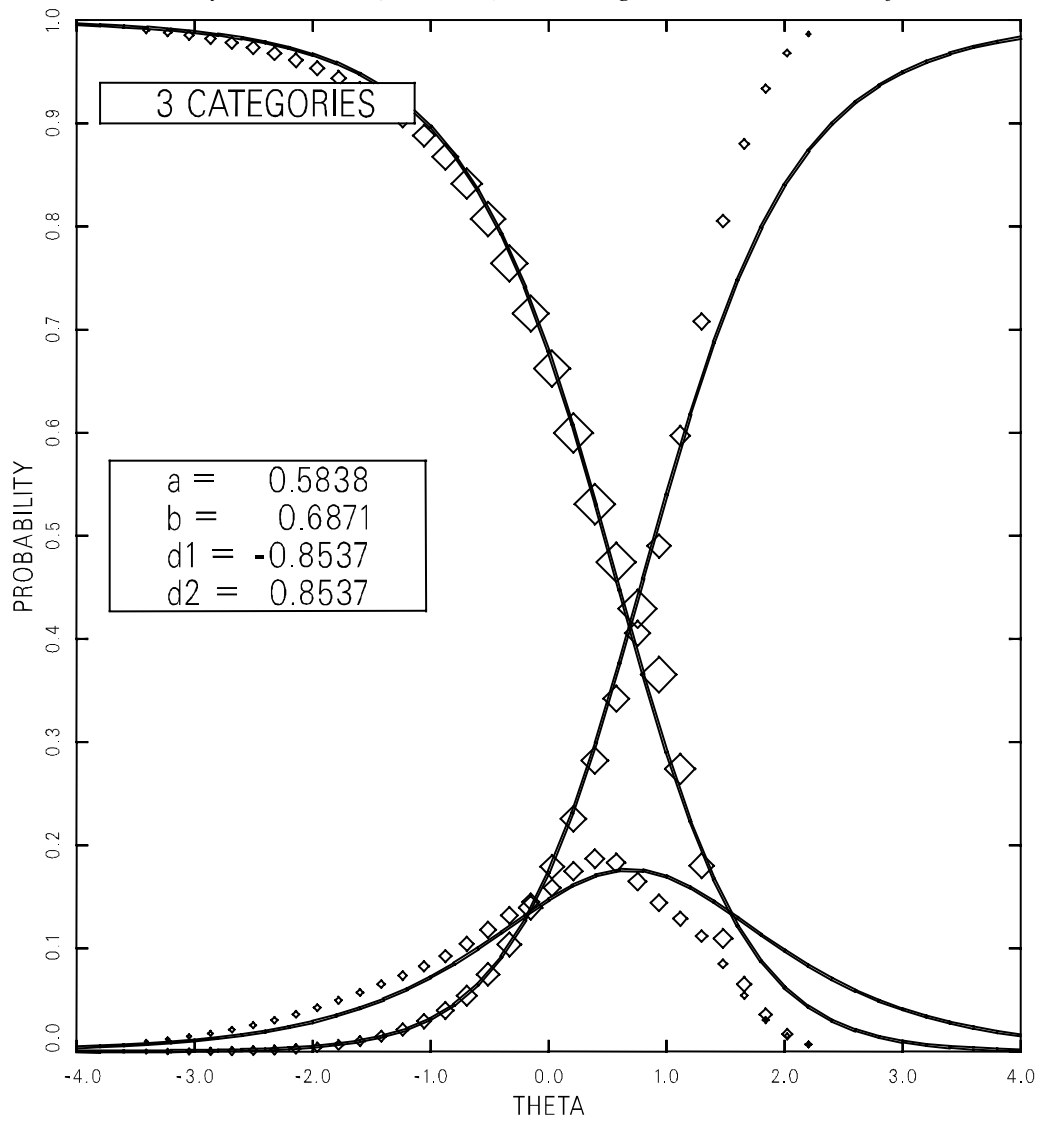
* Diamonds represent 1998 grade 12 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.

Figure 24-3
*Dichotomous Item (P041209) Exhibiting Moderate Model Misfit**



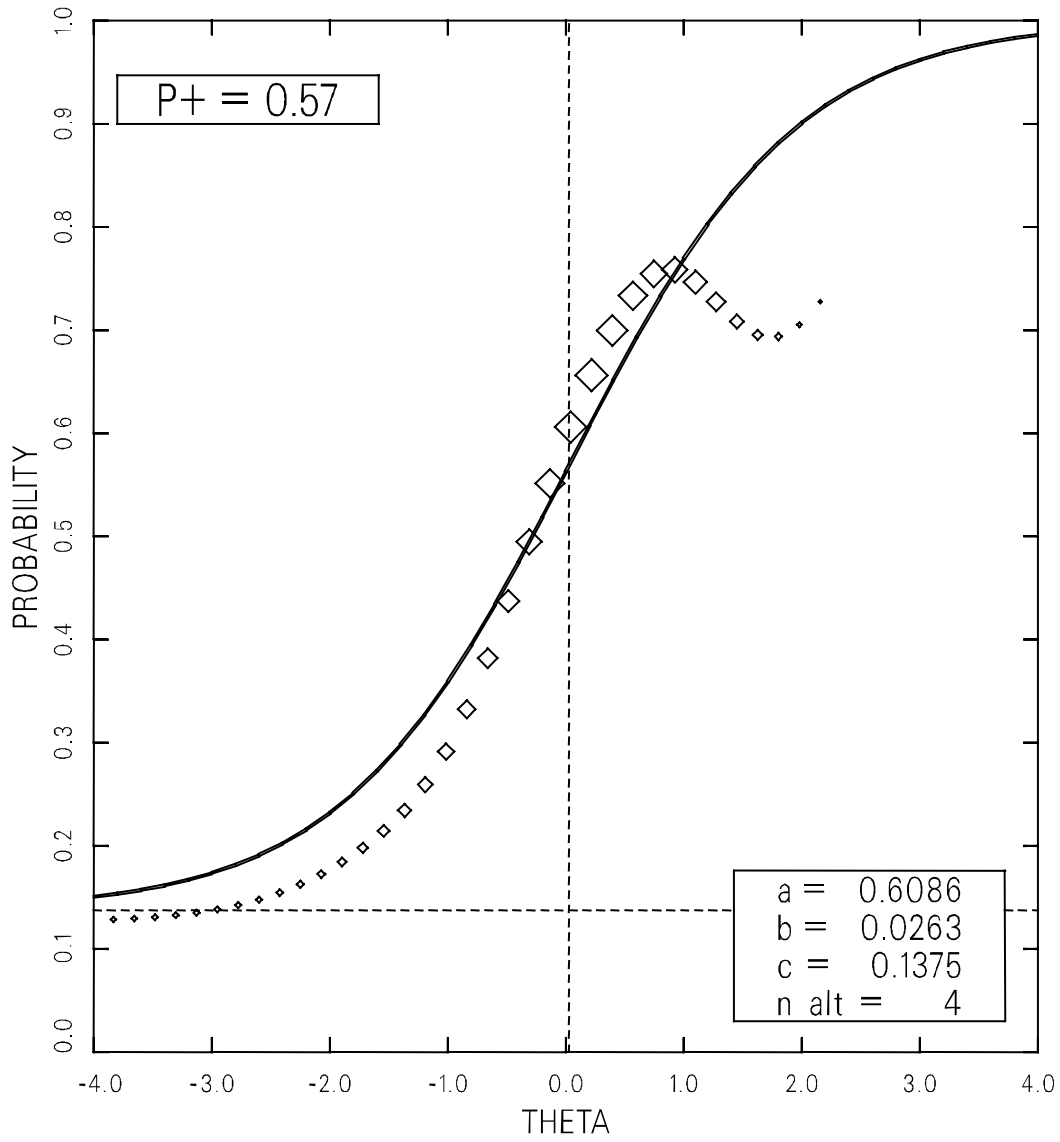
* Diamonds represent 1998 grade 12 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

Figure 24-4
Polytomous Item (P041902) Exhibiting Moderate Model Misfit



* *Diamonds represent 1998 grade 12 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

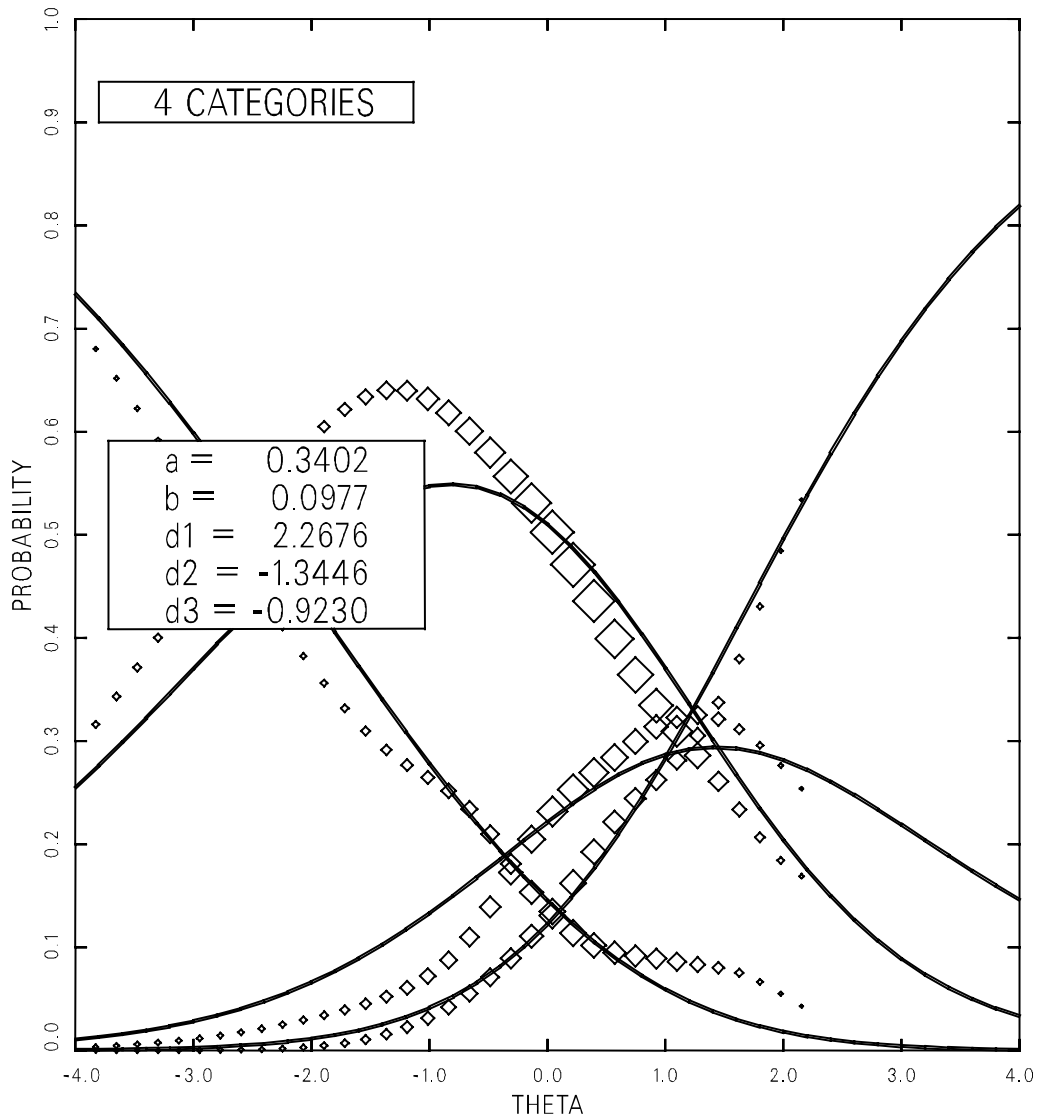
Figure 24-5
*Dichotomous Item (P040506) Exhibiting Poor Model Fit**
(Deleted from the Assessment)



* Diamonds represent 1998 grade 4 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item response function (IRF) assuming a logistic form.

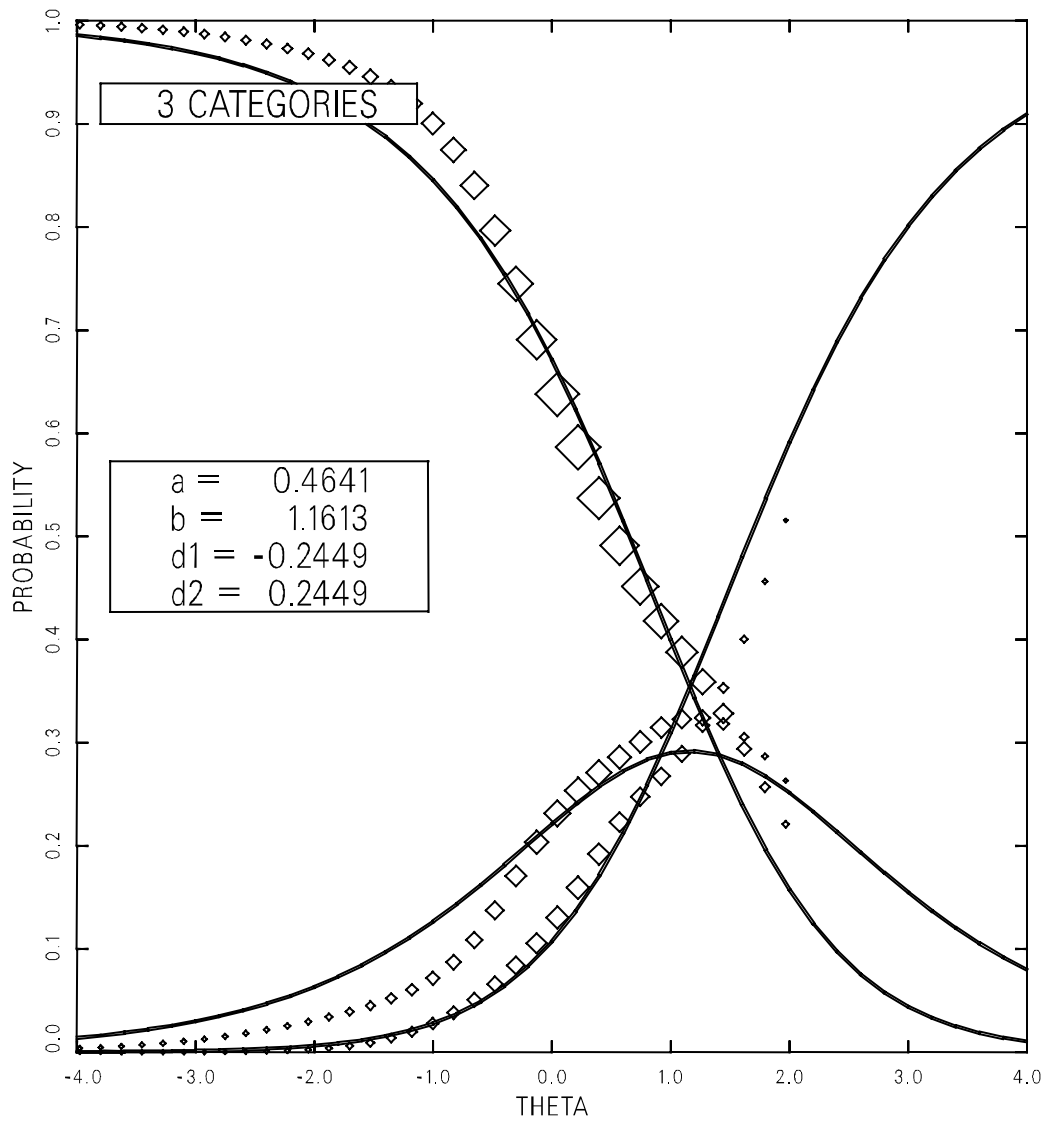
Figure 24-6

*Polytomous Item (P040402) Exhibiting Poor Model Fit in the Lower Two Categories**



** Diamonds represent 1998 grade 4 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

Figure 24-7
*Same Polytomous Item (P040402) with the Lower Two Categories Collapsed,
 Now Exhibiting Improved Model Fit**



** Diamonds represent 1998 grade 4 civics assessment data. They indicate estimated conditional probabilities obtained without assuming a specific model form; the curve indicates the estimated item category response function (ICRF) using a generalized partial credit model.*

24.4 GENERATION OF PLAUSIBLE VALUES

For the grade sample, univariate plausible values for a single overall civics score scale were generated using the univariate conditioning program BGROUP. As with the scaling, student weights were used at this stage of the analysis. To avoid bias in reporting results and to minimize biases in secondary analyses, it was desirable to incorporate a large number of independent variables in the conditioning model. When expressed in terms of contrast-coded main effects and interactions, the number of variables to be included totaled 869 for grade 4, 866 for grade 8, and 699 for grade 12. The much larger numbers for grade 4 and grade 8 reflect the number of contrasts from the teacher questionnaires.

Some of these contrasts involved relatively small numbers of individuals and some were highly correlated with other contrasts or sets of contrasts. Given the large number of contrasts, an effort was made to reduce the dimensionality of the predictor variables. The original background variable contrasts were standardized and transformed into a set of linearly independent variables by extracting separate sets of principal components at each grade level. The principal components, rather than the original variables, were used as the independent variables in the conditioning model. The number of principal components was the number required to account for at least 90 percent of the variance in the original contrast variables. Research based on data from the 1990 trial state assessment in mathematics suggests that results obtained using such a subset of components will differ only slightly from those obtained using the full set (Mazzeo, Johnson, Bowker, & Fong, 1992). The principal component procedure reduced the number of variables to 318 in grade 4, 320 in grade 8, and 263 in grade 12.

Research based on data from the 1990 trial state assessment suggests that results obtained using the 90 percent subset of components will differ only slightly from those obtained using the full set (Mazzeo, Johnson, Bowker, & Fong, 1992). Table 24-5 contains a list of the number of principal components included in conditioning, as well as the proportion of scale score variance accounted for by the conditioning model (as described in Chapter 12) for each grade.

The codings of the original civics-specific conditioning variables, before principal components were calculated, are presented in Appendix F. The BGROUP program estimates distributions of scale scores by combining information from item responses of individuals and information from linear regression of scale score on conditioning variables. For each individual, five plausible values are randomly drawn from their estimated scale score distribution.

Table 24-5
*Proportion of Scale Score Variance Accounted for by the Conditioning Model
for the National Main Civics Assessment*

Grade	Number of Conditioning Contrasts	Number of Principal Components	Proportion of Scale Score Variance Accounted for
4	869	319	.64
8	866	320	.58
12	699	262	.55

The conditioning model reduces redundancy by extracting principal components from a large number of conditioning variables and basing conditioning on the components that account for 90 percent of the variance of the components (see Sections 17.4 and 20.4).

The proportion of variance of each original conditioning variable accounted for by the principal components included in the conditioning model is listed in Appendix C. The estimated conditioning effects for the principal components of the samples defined by the three grade groups are also given in Appendix C. The values of the conditioning effects are expressed in the metrics of the original calibration scale. Definitions of derived conditioning variables are given in Appendix G.

24.5 TRANSFORMATION OF THE CIVICS CALIBRATION SCALE FOR REPORTING

Since the 1998 civics assessment was developed and scaled using within-grade procedures, and since there was no prior civics assessment with a comparable framework to which it was being linked, a new reporting metric was adopted. The results are reported on 0–300 scales with identical means at each grade. As is shown in Table 24-6, the mean of the civics scale was set at 150 for each grade, and the standard deviation at 35.

Table 24-6
Means and Standard Deviations for the Civics Scale

Grade	All Five Plausible Values	
	Mean	S. D.
4	150.0	35.0
8	150.0	35.0
12	150.0	35.0

If the achievement distribution were normal, we would expect this range to cover about 99.998 percent of the distribution. Note that any transformed scale scores below 0 were censored to values of 0. A total of three scores in grade 4, six scores in grade 8, and five scores in grade 12 were censored to values of 0. Had any transformed scale scores been greater than 300, they would have been censored to values of 300; however, no such cases were encountered.

Constraining the mean and standard deviation of the scales in this way also constrained, to some degree, the percentile distributions for the total group. However, within-grade comparisons of percentiles across subgroups continue to provide valuable comparative information, although cross-grade comparisons, with each grade set to the same mean and standard deviation, do not have meaning.

For each grade, the target mean and standard transformation resulted from applying the linear transformation:

$$\theta_{target} = A \cdot \theta_{calibrated} + B,$$

where A and B are linear transformation constants. The values of A and B for each grade are given in Table 24-7. These numbers are documented for researchers who wish to reproduce these analyses, and equally, for archival purposes for those who carried out these analyses.

Table 24-7
Transformation Constants for the National Main Civics Assessment

Grade	A	B
4	39.98	149.36
8	38.49	149.68
12	37.87	149.46

24.6 PARTITIONING OF THE ESTIMATION ERROR VARIANCE

Within each grade, the error variance of the reporting scale mean was partitioned according to the procedure described in Chapter 12. The variance is partitioned into two parts: the proportion of error variance due to sampling students (sampling variance) and the proportion of error variance due to the fact that scale score, θ , is a latent variable that is estimated rather than observed. Table 24-8 contains estimates of the total error variance, the proportion of error variance due to sampling students, and the proportion of error variance due to the latent nature of θ (for stability, the estimates of the between-imputation variance, B , in Equation 12.12 are based on 100 imputations for each student). Table 24-8 shows that the preponderance of error variance is attributable to student sampling. More detailed information by gender and race/ethnicity is presented in Appendix H.

Table 24-8
*Estimation Error Variance and Related Coefficients
for the National Main Civics Assessment*

Grade	Total Estimation Error Variance	Proportion of Variance Due to...	
		Student Sampling	Latency of θ
4	.54	.90	.10
8	.32	.91	.09
12	.62	.95	.05

* Since θ is unobserved, or "latent," a proportion of the estimation error is due to the fact that θ is known imperfectly.

24.7 CIVICS TEACHER QUESTIONNAIRE

Teachers of fourth- and eighth-grade students assessed in civics were surveyed. Along with a variable that indicated whether a student record had been matched with a teacher record, variables derived from the questionnaire were used in the conditioning models for the grade 4 and the grade 8 samples. These variables were included, so that means for subgroups defined by these variables could be compared with no bias. Of the 5,948 fourth-grade students in the main sample, 5,110 (86%) were matched with both parts of the teacher questionnaire and 277 (5%) were matched with only the first part of the questionnaire. Of the 8,212 eighth-grade students in the main sample, 6,053 (74%) were matched with both parts of the teacher questionnaire and 649 (8%) were matched with only the first part of the questionnaire. Thus, 91 percent of the fourth-graders and 82 percent of the eighth-graders were matched with at least the background information about their civics teachers.

Appendix A

STATISTICAL SUMMARY OF THE 1998 NAEP SAMPLES¹

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Educational Testing Service

A.1 INTRODUCTION

The analysis of the 1998 NAEP data has resulted in the production of thousands of tables presenting estimates of the scale score of students, and various subgroups of students, in American schools. This appendix provides a statistical summary of the 1998 NAEP national samples. The appendix assumes a general familiarity with the structure of NAEP as summarized in the Introduction and in the overviews presented in Chapters 1 and 9. Similar results for the individual state samples appear on the NCES website (<http://nces.ed.gov/nationsreportcard>).

Two of the many types of NAEP results are presented here:

1. the results of the instrument development process, including the sizes of the item pools and numbers of booklets; and
2. the results of the sampling process, including the numbers of students in each sample by selected subgroups.

A.2 MEASUREMENT INSTRUMENTS

For the 1998 assessment, 79 different assessment booklets and questionnaires were printed for grade 4, 99 for grade 8, and 98 for grade 12. These instruments are shown by age level and type in Table A-1.

The item pool contributing to all booklets is described in Table A-2. In general, there are two types of items, cognitive and noncognitive. The cognitive items are developed to measure proficiency in subject areas (reading, writing, and civics). Cognitive items may be constructed-response or multiple-choice. The noncognitive items are usually questions about the student's or teacher's backgrounds and perceptions but may also probe other areas, such as school policies or teaching methods. Because many items were used at more than grade class, the total number of items in an item pool is not the sum of the item pools used for the three grade classes.

The SD/LEP Student Questionnaires, Teacher Questionnaires, and School Characteristics and Policies Questionnaires contained only noncognitive questions. The number of items in the noncognitive pools is the same as the number of items on the questionnaires. More information about the instruments that were developed is provided in Chapters 2, 14, 18, and 22.

¹ Bruce A. Kaplan was responsible for the text, specifying the tables, and coordinating table production. Youn-Hee Lim, Ting Lu, and Michael Narcowich produced most of the tables in this chapter. The advice of David S. Freund and Nancy L. Allen was invaluable in the production of this chapter.

A.3 SAMPLE CHARACTERISTICS

In this section, the characteristics of the final reporting NAEP samples are described. The process by which the samples were selected is discussed in Chapters 3 (national) and 4 (state).

In the 1998 main assessment, NAEP contacted 2,866 schools (2,698 original and 168 replacements), of which 2,102 contributed data to the assessment. The disposition of these schools is shown in Table A-3. Some of the schools were unwilling to cooperate; others were believed to be eligible from the sampling frame, but were not. The cooperation rate is calculated as the sum of cooperating schools and the schools that were found to have no eligible students divided by the same sum plus the schools that refused or were from districts that refused to cooperate.

Table A-4 shows the number of schools in several categories: region of the country (Northeast, Southeast, Central, West), school type (public, nonpublic, Catholic, Bureau of Indian Affairs, Department of Defense Education Activity), type of location, number of teachers, and number of students.

The numbers of respondents to the teacher questionnaires are summarized in Table A-5. The first column in this table includes the number of teachers who responded, by grade and subject area. The second column is the number of students who were not linked to teachers. The third column is the number of students linked to teachers, but not specific classes of these teachers (for eighth grade) or teachers who did not answer classroom information (for fourth grade). The last column is the number of students linked to their teachers and their specific classes.

Table A-6 lists the total number of students assessed, accommodated, and excluded. This is done by grade crossed with subject area. Note that the number of accommodated students is included in the assessed students. No accommodations were offered in the reading reporting sample, the writing 50-minute sample, and the civics special trend sample. Also for reading, the numbers are for the reporting sample only.

Tables A-7 through A-9 display the distribution of the students assessed in the national and state NAEP assessment in several basic categories: gender, racial/ethnic grouping, region of the country, parental education, type of location, school type, modal age, and students with disabilities (SD), and students with Limited English Proficiency (LEP) status. These data are presented for assessed students in the reading samples in Table A-7, the writing samples in Table A-8, and the civics samples in Table A-9. Tables A-10, A-11, and A-12 provide equivalent information, respectively, for excluded students. Table A-13 for writing and Table A-14 for civics contain similar information for the accommodated students. The reading reporting sample, due to the necessity of linking to trend, did not contain students who were offered accommodations.

A.4 POPULATION ESTIMATES

The 1998 NAEP samples were designed for estimating the size and attributes of a number of different populations of students. The estimation procedures use sampling weights, developed by Westat, Inc., that are associated with the members of the sample (see Chapters 3 and 4). In this appendix, all estimates of population parameters are calculated using these sampling weights. Note these estimates are for the reporting samples (see Chapters 3 and 4 for an explanation of the reporting and modular samples).

The sum of the initial weights for a given sample is an estimate of the number of students who are in the population represented by the sample. In other words, the sum of the initial weights is taken as the estimated population size. In analyses, however, this sum of weights was rescaled to sum to the sample size. For example, in Table A-15, the estimated number of fourth graders in the nation is

3,588,382, as estimated from the main reading sample, as opposed to the 7,672 students in the sample given in Table A-7. The sum of the weights of the students in the state assessment estimate the total number of grade eligible students in the participating jurisdictions.

The sum of the weights of the excluded students estimates the number of ineligible students at the respective grade levels.

An estimate of the total number of students in a grade sample can be made by summing the initial weights of grade-eligible students plus the initial weights of grade-eligible students from the appropriate excluded student sample.

Tables A-15 to A-17 show the sizes of the estimated populations of assessable students and the weighted percentages for the NAEP reporting categories of gender, race/ethnicity, region of the country, parents' education level, type of location, school type, modal age and SD/LEP status. The estimated subpopulation percentages for the national and state samples are shown in Tables A-15 through A-17. Tables A-18 to A-20 show the estimated total population of excluded students and the weighted percentages by demographic subgroups (data about parents' education level is not collected for excluded students and therefore not reported; data about reasons for exclusion are included instead).

Tables showing selected scale score results for assessed students, as an aid to readers who are interested in the estimates of scale scores that led to the interpretive results provided in the NAEP subject area reports, can be accessed from Summary Data Tables posted on the National Center for Education Statistics website at <http://nces.ed.gov/nationsreportcard>.

Table A-1
Measurement Instruments Used in 1998 NAEP

	Grade 4	Grade 8	Grade 12
Total	78	98	97
Student Booklets			
Reading	16	19	20
Writing 25-Minute	40	40	40
Writing 50-Minute	—	3	3
Civics Main	18	32	32
Questionnaires			
SD/LEP	1	1	1
Teacher	2	2	—
School	1	1	1

Note: “—” indicates that this category was not applicable.

Table A-2
Number of Items Administered, by Sample and Age Class

	Grade 4	Grade 8	Grade 12
Common Background			
Reading	21	17	18
Writing 25-Minute	21	22	24
Writing 50-Minute	21	22	24
Civics Main	21	22	24
Reading			
Background	22	24	25
Cognitive	82	110	119
Motivation	5	5	5
Writing 25-Minute			
Background	17	28	28
Cognitive	20	20	20
Motivation	5	5	5
Writing 50-Minute			
Background	—	28	28
Cognitive	—	3	3
Motivation	—	5	5
Civics			
Background	22	24	29
Cognitive	90	151	152
Motivation	5	5	5
Questionnaires			
SD/LEP	46	46	46
Teacher Reading/Writing	145	145	—
Teacher Civics	89	88	—
School	52	52	52

Note: “—” indicates that this category was not applicable.

Table A-3
School Participation in NAEP 1998 Main Samples (All Subsamples)

	Grade 4	Grade 8	Grade 12
Total Original Sample	889	957	852
Cooperating	671	703	560
No Eligibles Enrolled	7	7	4
School Refused	104	118	135
Cooperation Rate	81%	81%	75%
Cooperating Replacements for Refusals	62	58	48
Totals			
Cooperating Schools	733	761	608
Completing Questionnaires	700	721	569
Missing	33	40	39

Table A-4
School Characteristics in NAEP 1998 Main Samples

	Grade 4	Grade 8	Grade 12
Region			
Northeast	161	170	123
Southeast	174	175	167
Central	173	187	121
West	225	229	197
School Type			
Public	473	427	446
Private	93	114	82
Catholic	28	33	19
BIA	138	186	59
DODEA	1	0	2
Size and Type of Community			
Rural	157	166	113
Disadvantaged Urban	148	141	108
Advantaged Urban	192	209	153
Big City	49	54	45
Fringe	9	10	8
Medium City	80	76	77
Small Place	98	105	104
Number of Enrolled Students			
10-250	194	192	101
251-500	245	194	105
501-1000	208	209	106
1,001-2,000	28	91	158
2,000+	1	7	78

Table A-5
*Numbers of Responses to Teacher Questionnaires and Students
 Matched with Teacher Data*

			Number of Teachers Responding	No Match	Partial Match	Complete Match
Reading						
Grade 4	National		1,252	597	334	6,741
Grade 4	State		14,707	7,099	13	105,026
Grade 8	National		1,266	1,181	935	8,935
Grade 8	State		10,209	5,736	6,575	82,118
Writing						
Grade 4	25-Minute		1,799	1,395	830	17,591
Grade 8	25-Minute		1,565	4,279	1,574	14,733
Grade 8	50-Minute		1,286	1,277	467	4,266
Grade 8	State		10,695	6,064	6,920	84,605
Civics						
Grade 4	Main		1,606	561	277	5,110
Grade 8	Main		1,275	1,510	649	6,053

Table A-6
*Number of Students Assessed, Accommodated, and Excluded
 by Reporting Sample and Grade*

	Grade 4	Grade 8	Grade 12
ASSESSED STUDENTS	145,574	237,877	45,751
Reading	119,810	105,480	12,675
<i>National</i>	7,672	11,051	12,675
<i>State</i>	112,138	94,429	—
Writing	19,816	124,185	25,313
<i>25-Minute</i>	19,816	20,586	19,505
<i>50-Minute</i>	—	6,010	5,808
<i>State</i>	—	97,589	—
Civics	5,948	8,212	7,763
ACCOMMODATED STUDENTS	953	3,670	432
Reading	—	—	—
<i>National</i>	—	—	—
<i>State</i>	—	—	—
Writing	746	3,449	326
<i>25-Minute</i>	746	678	326
<i>50-Minute</i>	—	—	—
<i>State</i>	—	2,771	—
Civics	207	221	106
EXCLUDED STUDENTS	7,605	10,461	1,582
Reading	5,748	4,074	448
<i>National</i>	545	623	448
<i>State</i>	5,203	3,451	—
Writing	1,450	6,046	887
<i>25-Minute</i>	1,450	877	658
<i>50-Minute</i>	—	270	229
<i>State</i>	—	4,899	—
Civics	407	341	247

Note: “—” indicates that this category was not applicable.

Table A-7
*Number of Students in the Reading Reporting Samples
 by Subgroup Classification, National Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8
Total	7,672	11,051	12,675	112,138	94,429
Gender					
Male	3,749	5,512	6,086	55,393	46,636
Female	3,923	5,539	6,589	56,745	47,793
Race/Ethnicity					
White	4,277	6,457	7,585	71,446	62,082
Black	1,300	1,745	2,052	19,124	15,222
Hispanic	1,624	2,141	2,234	13,733	10,379
Asian American	283	564	689	4,634	4,600
American Indian	173	119	94	3,007	1,940
Unclassified	15	25	21	194	206
Region					
Northeast	1,547	2,006	2,533	22,981	19,092
Southeast	2,212	3,046	3,570	31,713	29,483
Central	1,455	2,273	2,325	17,925	11,216
West	2,458	3,726	4,247	32,368	31,019
Unclassified (Territories)	—	—	—	7,151	3,619
Parent's Education					
Less Than High School	248	831	1,118	3,166	6,316
High School	966	2,230	2,359	15,139	20,344
Greater Than High School	1,282	1,889	3,150	19,906	18,506
Graduated College	4,228	4,996	5,626	60,907	41,158
Unknown	948	1,105	422	13,020	8,105
Type of Location					
Central City	3,119	4,455	4,891	36,251	28,841
Urban Fringe/Large Town	2,812	4,068	4,743	34,426	30,633
Rural/Small Town	1,741	2,528	3,041	38,581	32,715
Unclassified (Territories)	—	—	—	2,880	2,240
School Type					
Public	6,300	9,091	10,664	98,873	86,201
Nonpublic	1,372	1,960	2,011	7,676	5,264
Private	493	746	588	2,917	1,833
Catholic	879	1,214	1,423	4,759	3,431
BIA	0	0	0	124	104
DODEA	0	0	0	5,465	2,860

Note: “—” indicates that this category was not applicable.

(continued)

Table A-7 (continued)
*Number of Students in the Reading Reporting Samples
 by Subgroup Classification, National Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8
Modal Age					
< Modal Age	44	71	164	611	501
= Modal Age	4,979	6,729	8,204	72,369	56,697
> Modal Age	2,649	4,251	4,307	39,158	37,231
SD/LEP					
SD Only	236	427	286	3,075	2,784
LEP Only	197	291	259	1,333	794
SD & LEP	7	24	18	75	57
Non SD/LEP	7,232	10,309	12,112	107,655	90,794

Table A-8
*Number of Students in the Writing 25-Minute and 50-Minute Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8*

	Main 25-minute			Main 50-minute		State 25-minute
	Grade 4	Grade 8	Grade 12	Grade 8	Grade 12	Grade 8
Total	19,816	20,586	19,505	6,009	5,804	97,589
Gender						
Male	9,971	10,298	9,302	2,999	2,770	48,834
Female	9,845	10,288	10,203	3,010	3,034	48,755
Race/Ethnicity						
White	10,612	11,774	11,628	3,531	3,476	62,490
Black	3,242	3,271	3,139	910	925	15,583
Hispanic	4,537	4,261	3,383	1,184	1,003	12,148
Asian American	760	930	1,088	275	316	4,723
American Indian	603	298	199	93	65	2,423
Unclassified	62	52	68	16	19	222
Region						
Northeast	4169	4,042	4,068	1,152	1,183	20,342
Southeast	5,541	5,643	5,479	1,653	1,644	30,946
Central	3,534	3,936	3,618	1,159	1,085	9,723
West	6,572	6,965	6,340	2,045	1,892	32,939
Unclassified (Territories)	—	—	—	—	—	3,639
Parent's Education						
Less Than High School	595	1,056	1,412	316	393	4,090
High School	2,241	2,855	2,492	878	767	14,814
Greater Than High School	3,207	5,665	5,283	1,621	1,629	27,702
Graduated College	11,363	10,261	9,886	2,953	2,890	47,653
Unknown	2,410	749	432	241	125	3,330
Type of Location						
Central City	8,024	8,305	7,640	2,449	2,276	30,070
Urban Fringe/Large Town	7,117	7,940	7,237	2,293	2,185	31,571
Rural/Small Town	4,675	4,341	4,628	1,267	1,343	33,652
Unclassified (Territories)	—	—	—	—	—	2,296
School Type						
Public	16,330	17,005	16,221	4,941	4,821	89,164
Nonpublic	3,464	3,581	3,267	1,068	977	5,411
Private	1,118	1,388	963	405	285	1,849
Catholic	2,346	2,193	2,304	663	692	3,562
BIA	22	0	17	0	6	73
DODEA	0	0	0	0	0	2,941

Note: "—" indicates that this category was not applicable.

(continued)

Table A-8 (continued)
*Number of Students in the Writing 25-Minute and 50-Minute Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8*

	Main 25-minute			Main 50-minute		State 25-minute
	Grade 4	Grade 8	Grade 12	Grade 8	Grade 12	Grade 8
Modal Age						
< Modal Age	87	146	231	46	76	523
= Modal Age	12,814	12,311	12,523	3,587	3,723	58,004
> Modal Age	6,915	8,129	6,751	2,376	2,005	39,062
SD/LEP						
SD Only	1,342	1,407	785	242	154	6,859
LEP Only	785	591	508	160	127	1,678
SD & LEP	44	60	24	15	3	157
Non SD/LEP	17,645	18,528	18,188	5,592	5,520	88,895

Table A-9
*Number of Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Total	5,948	8,212	7,763
Gender			
Male	3,017	4,078	3,654
Female	2,931	4,134	4,109
Race/Ethnicity			
White	3,200	4,732	4,597
Black	937	1,280	1,240
Hispanic	1,415	1,720	1,398
Asian American	217	348	433
American Indian	164	116	74
Unclassified	15	16	21
Region			
Northeast	1,241	1,616	1,641
Southeast	1,656	2,258	2,196
Central	1,078	1,568	1,404
West	1,973	2,770	2,522
Parent's Education			
Less Than High School	173	448	560
High School	683	1,184	1,048
Greater Than High School	977	2,249	2,106
Graduated College	3,449	4,013	3,883
Unknown	642	265	74
Type of Location			
Central City	2,416	3,311	3,069
Urban Fringe/Large Town	2,121	3,157	2,854
Rural/Small Town	1,411	1,744	1,840
School Type			
Public	4,893	6,795	6,437
Nonpublic	1,048	1,417	1,319
Private	340	553	383
Catholic	708	864	936
BIA	7	0	7
DODEA	0	0	0
Modal Age			
< Modal Age	10	50	103
= Modal Age	3,827	4,963	4,927
> Modal Age	2,111	3,199	2,733
SD/LEP			
SD Only	385	542	292
LEP Only	262	199	211
SD & LEP	10	17	9
Non SD/LEP	5,291	7,454	7,251

Table A-10
*Number of Excluded Students in the Reading Reporting Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8
Total	545	623	448	5,203	3,451
Gender					
Male	311	390	282	3,326	2,294
Female	234	233	166	1,877	1,157
Race/Ethnicity					
White	154	243	225	2,603	1,716
Black	52	174	78	1,051	785
Hispanic	317	175	117	1,181	681
Asian American	22	21	26	233	161
American Indian	0	9	1	85	85
Unclassified	0	1	1	50	23
Region					
Northeast	59	112	128	1,130	782
Southeast	99	183	112	1,481	1,144
Central	81	122	55	681	369
West	306	206	153	1,697	1,071
Unclassified (Territories)	—	—	—	214	85
Type of Location					
Central City	253	298	207	2,013	1,243
Urban Fringe/Large Town	207	204	160	1,512	1,067
Rural/Small Town	85	121	81	1,600	1,088
Unclassified (Territories)	—	—	—	78	53
School Type					
Public	540	622	440	5,019	3,363
Nonpublic	5	1	8	31	20
Private	1	0	6	6	8
Catholic	4	1	2	25	12
BIA	0	0	0	2	3
DODEA	0	0	0	151	65

Note: “—” indicates that this category was not applicable.

(continued)

Table A-10 (continued)
*Number of Excluded Students in the Reading Reporting Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8
Modal Age					
< Modal Age	0	1	10	29	26
= Modal Age	326	216	125	2,433	1,184
> Modal Age	219	406	313	2,741	2,241
SD/LEP					
SD Only	222	489	333	3,979	2,787
LEP Only	298	99	83	1,016	535
SD & LEP	25	35	32	208	129

Table A-11
Number of Excluded Students in the Writing Samples
by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8

	Main 25 min.			Main 50 min.		State 25 min.
	Grade 4	Grade 8	Grade 12	Grade 8	Grade 12	Grade 8
Total	1,450	877	658	266	201	4,899
Gender						
Male	874	549	404	144	127	3,190
Female	576	328	254	122	74	1,709
Race/Ethnicity						
White	336	334	286	84	84	2,217
Black	266	218	169	65	52	1,091
Hispanic	797	286	171	101	55	1,164
Asian American	42	35	29	14	8	270
American Indian	5	3	2	2	2	108
Unclassified	4	1	1	0	0	49
Region						
Northeast	153	129	95	44	44	1,066
Southeast	275	221	204	62	45	1,596
Central	158	183	88	51	35	344
West	864	344	271	109	77	1,781
Unclassified (Territories)	—	—	—	—	—	112
Type of Location						
Central City	788	443	291	145	82	1,873
Urban Fringe/Large Town	459	250	232	72	70	1,433
Rural/Small Town	203	184	135	49	49	1,549
Unclassified (Territories)	—	—	—	—	—	44
School Type						
Public	1,436	865	656	265	201	4,819
Nonpublic	14	12	2	1	0	24
Private	6	3	1	0	0	10
Catholic	8	9	1	1	0	14
BIA	0	0	0	0	0	1
DODEA	0	0	0	0	0	55
Modal Age						
< Modal Age	9	8	10	3	3	54
= Modal Age	786	311	168	110	46	1,615
> Modal Age	655	558	480	153	152	3,230
SD/LEP						
SD Only	697	604	536	182	162	3,697
LEP Only	644	205	92	70	34	988
SD & LEP	109	68	30	14	5	214

Note: “—” indicates that this category was not applicable.

Table A-12
*Number of Excluded Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Total	407	341	247
Gender			
Male	257	207	153
Female	150	134	94
Race/Ethnicity			
White	98	130	109
Black	66	74	61
Hispanic	223	118	56
Asian American	18	16	18
American Indian	1	2	2
Unclassified	1	1	1
Region			
Northeast	38	51	36
Southeast	76	82	63
Central	34	63	42
West	259	145	106
Type of Location			
Central City	205	159	106
Urban Fringe/Large Town	150	107	101
Rural/Small Town	52	75	40
School Type			
Public	405	337	247
Nonpublic	2	4	0
Private	0	1	0
Catholic	2	3	0
BIA	0	0	0
DODEA	0	0	0
Modal Age			
< Modal Age	3	2	0
= Modal Age	233	121	61
> Modal Age	171	218	186
SD/LEP			
SD Only	186	225	201
LEP Only	194	89	35
SD & LEP	27	27	11

Table A-13
*Number of Accommodated Students in the Writing Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8**

	Main 25 min.			State 25 min.
	Grade 4	Grade 8	Grade 12	Grade 8
Total	746	678	326	2,652
Gender				
Male	475	444	196	1,809
Female	271	234	130	843
Race/Ethnicity				
White	352	337	189	1,578
Black	150	130	46	370
Hispanic	197	175	72	509
Asian American	19	20	17	94
American Indian	24	16	2	98
Unclassified	4	0	0	3
Region				
Northeast	182	179	135	751
Southeast	248	223	91	806
Central	123	103	46	283
West	193	173	54	752
Unclassified (Territories)	—	—	—	60
Parent's Education				
Less Than High School	41	50	37	200
High School	86	109	45	453
Greater Than High School	102	200	75	756
Graduated College	382	273	151	1,025
Unknown	135	46	18	218
Type of Location				
Central City	280	218	101	686
Urban Fringe/Large Town	304	293	127	929
Rural/Small Town	162	167	98	991
Unclassified (Territories)	—	—	—	46
School Type				
Public	700	641	306	2,534
Nonpublic	46	37	20	52
Private	18	9	10	29
Catholic	28	28	10	23
BIA	0	0	0	6
DODEA	0	0	0	60

* Accommodations were not offered in the 50-minute study.
 Note: “—” indicates that this category was not applicable.

Table A-13 (continued)
*Number of Accommodated Students in the Writing Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8**

	Main 25 min.			State 25 min.
	Grade 4	Grade 8	Grade 12	Grade 8
Modal Age				
< Modal Age	2	7	5	5
= Modal Age	344	253	108	991
> Modal Age	400	418	213	1,656
Type of Accommodation				
Large-Print Book	3	5	5	16
Extended Time	181	211	120	1,040
Read Aloud	42	24	6	313
Bilingual Dictionary	5	14	8	53
Small Groups	449	379	152	944
One on One	32	29	14	121
Scribe/Computer	27	10	9	112
Other	7	6	12	53
Accommodation Book				
Yes	737	672	319	2,427
No	9	6	7	225
SD/LEP				
SD Only	626	588	268	2,408
LEP Only	104	74	53	177
SD & LEP	16	16	5	67

* Accommodations were not offered in the 50-minute study.

Table A-14
*Number of Accommodated Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Total	207	221	106
Gender			
Male	132	142	66
Female	75	79	40
Race\Ethnicity			
White	93	121	52
Black	34	37	21
Hispanic	65	57	26
Asian American	5	3	2
American Indian	10	3	5
Unclassified	0	0	0
Region			
Northeast	47	71	44
Southeast	63	58	29
Central	32	53	18
West	65	39	15
Parent's Education			
Less Than High School	13	12	11
High School	16	26	16
Greater Than High School	36	74	27
Graduated College	105	88	48
Unknown	37	21	4
Type of Location			
Central City	84	77	32
Urban Fringe/Large Town	82	93	43
Rural/Small Town	41	51	31
School Type			
Public	197	209	97
Nonpublic	10	12	9
Private	4	2	4
Catholic	6	10	5
BIA	0	0	0
DODEA	0	0	0

(continued)

Table A-14 (continued)
*Number of Accommodated Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Modal Age			
< Modal Age	0	1	1
= Modal Age	116	87	30
> Modal Age	91	133	75
Type of Accommodation			
Large-Print Book	1	1	1
Extended Time	51	70	40
Read Aloud	6	9	1
Bilingual Dictionary	1	1	2
Small Groups	125	128	54
One on One	15	8	6
Scribe/Computer	3	2	0
Other	5	2	2
Accommodation Book			
Yes	202	218	105
No	5	3	1
SD/LEP			
SD Only	175	197	87
LEP Only	28	16	14
SD & LEP	4	8	5

Table A-15
*Weighted Percentages of Students in the Reading Reporting Samples
 by Subgroup Classification, National Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8
Total	3,588,382	3,464,591	3,061,170	2,833,845	2,599,198
Gender					
Male	50	51	48	50	50
Female	50	50	52	50	50
Race/Ethnicity					
White	67	67	69	61	61
Black	16	14	14	16	15
Hispanic	13	14	12	17	17
Asian American	3	4	4	4	5
American Indian	2	1	1	2	2
Unclassified	0	0	0	0	0
Region					
Northeast	22	22	22	17	17
Southeast	26	24	23	28	29
Central	24	25	26	20	15
West	28	29	29	35	39
Unclassified (Territories)	—	—	—	0	0
Parent's Education					
Less Than High School	3	7	7	3	8
High School	13	22	19	13	21
Greater Than High School	17	18	25	17	19
Graduated College	55	44	46	55	43
Unknown	12	9	3	12	10
Type of Location					
Central City	35	34	31	35	35
Urban Fringe/Large Town	36	40	39	38	39
Rural/Small Town	29	27	30	27	26
Unclassified (Territories)	—	—	—	0	0
School Type					
Public	89	89	89	92	93
Nonpublic	11	11	11	7	7
Private	4	4	4	3	2
Catholic	7	7	8	5	4
BIA	0	0	0	0	0
DODEA	0	0	0	0	0

Note: “—” indicates that this category was not applicable.

(continued)

Table A-15 (continued)
*Weighted Percentages of Students in the Reading Reporting Samples
 by Subgroup Classification, National Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade 12	Grade 4	Grade 8
Modal Age					
< Modal Age	1	1	1	0	0
= Modal Age	61	57	63	66	60
> Modal Age	38	43	36	34	39
SD/LEP					
SD Only	5	5	3	5	6
LEP Only	2	2	2	4	3
SD & LEP	0	0	0	0	0
Non SD/LEP	92	93	96	91	91

Table A-16
*Weighted Percentages of Students in the Writing 25-Minute and 50-Minute Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8*

	Main 25-Minute			Main 50-Minute		State 25-Minute
	Grade 4	Grade 8	Grade 12	Grade 8	Grade 12	Grade 8
Total	3,730,723	3,526,984	3,103,590	3,429,355	3,085,458	2,602,998
Gender						
Male	51	51	48	51	48	50
Female	49	49	52	49	52	50
Race/Ethnicity						
White	67	67	69	68	69	60
Black	15	14	14	14	14	15
Hispanic	13	14	12	13	12	18
Asian American	2	3	4	3	4	5
American Indian	2	1	1	1	1	2
Unclassified	0	0	0	0	0	0
Region						
Northeast	23	21	22	21	22	17
Southeast	25	25	23	24	24	30
Central	24	25	26	25	25	14
West	28	29	29	29	29	39
Unclassified (Territories)	—	—	—	—	—	0
Parent's Education						
Less Than High School	3	5	6	5	6	5
High School	12	15	13	16	14	15
Greater Than High School	16	27	27	28	27	28
Graduated College	57	50	52	48	51	48
Unknown	12	3	2	4	2	4
Type of Location						
Central City	35	33	32	33	31	35
Urban Fringe/Large Town	36	40	39	39	40	40
Rural/Small Town	30	27	30	27	29	26
Unclassified (Territories)	—	—	—	—	—	0
School Type						
Public	89	89	89	89	89	93
Nonpublic	12	11	12	11	12	7
Private	4	5	3	5	3	3
Catholic	8	7	8	7	8	4
BIA	0	0	0	0	0	0
DODEA	0	0	0	0	0	0

Note: "—" indicates that this category was not applicable.

(continued)

Table A-16 (continued)
*Weighted Percentages of Students in the Writing 25-Minute and 50-Minute Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8*

	Main 25-Minute			Main 50-Minute		State
	Grade 4	Grade 8	Grade 12	Grade 8	Grade 12	25-Minute Grade 8
Modal Age						
< Modal Age	1	1	1	1	1	1
= Modal Age	61	56	63	55	63	60
> Modal Age	39	44	36	44	36	39
SD/LEP						
SD Only	8	7	4	5	3	7
LEP Only	2	2	2	2	2	3
SD & LEP	0	0	0	0	0	0
Non SD/LEP	90	91	94	93	95	89

Table A-17
*Weighted Percentages of Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Total	3,745,108	3,533,641	3,137,172
Gender			
Male	52	51	48
Female	48	49	52
Race/Ethnicity			
White	67	67	69
Black	15	15	14
Hispanic	14	14	12
Asian American	2	3	4
American Indian	2	1	1
Unclassified	0	0	0
Region			
Northeast	23	22	23
Southeast	25	25	23
Central	24	25	25
West	27	29	30
Parent's Education			
Less Than High School	3	5	6
High School	12	16	14
Greater Than High School	17	27	27
Graduated College	58	49	52
Unknown	10	3	1
Type of Location			
Central City	35	33	32
Urban Fringe/Large Town	36	40	39
Rural/Small Town	30	28	30
School Type			
Public	88	89	88
Nonpublic	12	11	12
Private	4	5	3
Catholic	8	6	8
BIA	0	0	0
DODEA	0	0	0

(continued)

Table A-17 (continued)
*Weighted Percentages of Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Modal Age			
< Modal Age	0	1	1
= Modal Age	60	55	62
>Modal Age	39	44	37
SD/LEP			
SD Only	0	0	0
LEP Only	0	0	0
SD & LEP	0	0	0
Non SD/LEP	0	0	0

Table A-18
*Weighted Percentages of Excluded Students in the Reading Reporting Samples
 by Subgroup Classification, National Grades 4, 8, and 12 & State Grades 4 and 8*

	National			State	
	Grade 4	Grade 8	Grade12	Grade 4	Grade 8
Total	356,547	209,148	98,674	286,313	177,631
Gender					
Male	62	65	66	61	64
Female	38	35	34	39	36
Race/Ethnicity					
White	51	52	65	40	43
Black	12	25	16	15	19
Hispanic	32	20	15	37	30
Asian American	5	2	3	6	5
American Indian	0	1	0	1	2
Unclassified	0	0	0	0	1
Region					
Northeast	15	20	28	15	20
Southeast	20	23	29	23	27
Central	29	29	18	14	12
West	36	28	25	47	41
Unclassified (Territories)	—	—	—	0	0
Type of Location					
Central City	42	39	29	45	38
Urban Fringe/Large Town	30	37	41	35	38
Rural/Small Town	28	25	30	20	24
Unclassified (Territories)	—	—	—	0	0
School Type					
Public	99	100	98	99	99
Nonpublic	1	0	2	1	1
Private	0	0	1	0	0
Catholic	1	0	1	1	1
BIA	0	0	0	0	0
DODEA	0	0	0	0	0
Modal Age					
< Modal Age	0	0	1	1	1
= Modal Age	46	28	26	55	39
> Modal Age	54	72	73	45	60
SD/LEP					
SD Only	62	86	86	61	70
LEP Only	34	11	9	35	23
SD & LEP	4	4	5	5	7

Note: “—” indicates that this category was not applicable.

Table A-19
*Weighted Percentages of Excluded Students in the Writing Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8*

	Main 25 min.			Main 50 min.		State 25 min.
	Grade 4	Grade 8	Grade 12	Grade 8	Grade 12	Grade 8
Total	214,210	146,762	78,648	140,951	86,351	125,288
Gender						
Male	62	63	61	57	66	63
Female	38	37	39	43	34	37
Race/Ethnicity						
White	39	51	54	44	57	38
Black	22	24	25	25	22	19
Hispanic	36	22	18	27	17	36
Asian American	2	3	3	4	3	5
American Indian	0	0	0	1	1	1
Unclassified	0	0	0	0	0	1
Region						
Northeast	15	17	15	20	20	17
Southeast	23	24	31	25	22	28
Central	18	28	19	23	30	9
West	45	31	35	32	28	46
Unclassified (Territories)	—	—	—	—	—	0
Type of Location						
Central City	48	43	35	46	32	41
Urban Fringe/Large Town	32	30	38	31	35	36
Rural/Small Town	20	26	27	23	34	24
Unclassified (Territories)	—	—	—	—	—	0
School Type						
Public	99	99	100	100	100	99
Nonpublic	1	1	0	0	0	1
Private	0	0	0	0	0	1
Catholic	0	1	0	0	0	0
BIA	0	0	0	0	0	0
DODEA	0	0	0	0	0	0
Modal Age						
< Modal Age	1	1	2	1	1	1
= Modal Age	44	29	25	33	23	36
> Modal Age	55	71	74	66	76	63
SD/LEP						
SD Only	64	78	87	77	84	65
LEP Only	31	17	10	19	13	29
SD & LEP	6	6	3	4	3	6

Note: “—” indicates that this category was not applicable.

Table A-20
*Weighted Percentages of Excluded Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Total	199,822	140,098	76,333
Gender			
Male	65	62	61
Female	35	38	39
Race/Ethnicity			
White	38	52	55
Black	23	22	24
Hispanic	36	22	14
Asian American	4	4	5
American Indian	0	0	1
Unclassified	0	0	1
Region			
Northeast	12	17	15
Southeast	23	25	23
Central	15	25	26
West	51	33	37
Type of Location			
Central City	45	40	36
Urban Fringe/Large Town	38	36	44
Rural/Small Town	17	24	21
School Type			
Public	100	99	100
Nonpublic	0	1	0
Private	0	0	0
Catholic	0	1	0
BIA	0	0	0
DODEA	0	0	0
Modal Age			
< Modal Age	1	1	0
= Modal Age	48	31	23
>Modal Age	51	69	77
SD/LEP			
SD Only	0	0	0
LEP Only	0	0	0
SD & LEP	0	0	0

Table A-21
*Weighted Percentages of Accommodated Students in the Writing Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8**

	Main 25 min.			State 25 min.
	Grade 4	Grade 8	Grade 12	Grade 8
Total	150,096	101,366	43,165	76,570
Gender				
Male	65	66	61	68
Female	35	34	39	32
Race/Ethnicity				
White	63	60	69	56
Black	19	18	11	14
Hispanic	15	17	16	25
Asian American	1	2	3	3
American Indian	2	2	1	3
Unclassified	0	0	0	0
Region				
Northeast	29	26	42	31
Southeast	31	31	22	28
Central	21	22	23	13
West	20	21	14	28
Unclassified (Territories)	—	—	—	0
Parent's Education				
Less Than High School	5	7	9	8
High School	13	17	14	16
Greater Than High School	14	30	23	29
Graduated College	50	39	48	40
Unknown	19	7	6	8
Type of Location				
Central City	30	27	23	27
Urban Fringe/Large Town	42	42	42	40
Rural/Small Town	28	31	36	32
Unclassified (Territories)	—	—	—	0
School Type				
Public	97	97	97	98
Nonpublic	3	3	3	2
Private	1	1	2	1
Catholic	2	2	2	1
BIA	0	0	0	0
DODEA	0	0	0	0

*Accommodations were not offered in the 50-minute study.
 Note: “—” indicates that this category was not applicable.

(continued)

Table A-21 (continued)
*Weighted Percentages of Accommodated Students in the Writing Samples
 by Subgroup Classification, Grades 4, 8, and 12 & State Grade 8**

	Main 25 min.			State 25 min.
	Grade 4	Grade 8	Grade 12	Grade 8
Modal Age				
< Modal Age	0	1	1	0
= Modal Age	40	31	29	37
> Modal Age	60	68	70	63
Type of Accommodation				
Large-Print Book	0	1	1	1
Extended Time	20	30	33	42
Read Aloud	7	3	3	12
Bilingual Dictionary	0	2	2	2
Small Groups	61	58	50	34
One on One	6	4	5	4
Scribe/Computer	5	2	3	4
Other	1	1	4	2
Accommodation Book				
Yes	99	99	97	90
No	1	1	3	10
SD/LEP				
SD Only	90	91	88	90
LEP Only	8	8	11	6
SD & LEP	2	1	1	4

* Accommodations were not offered in the 50-minute study.

Table A-22

*Weighted Percentages of Accommodated Students in the Civics Main Samples
by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Total	136,538	116,685	41,679
Gender			
Male	67	67	65
Female	33	33	35
Race/Ethnicity			
White	59	67	62
Black	18	15	17
Hispanic	18	17	15
Asian American	2	1	1
American Indian	4	1	4
Unclassified	0	0	0
Region			
Northeast	28	34	46
Southeast	28	23	20
Central	19	33	25
West	24	11	10
Parent's Education			
Less Than High School	5	6	6
High School	9	14	13
Greater Than High School	18	32	25
Graduated College	51	38	51
Unknown	18	10	5
Type of Location			
Central City	35	28	23
Urban Fringe/Large Town	38	41	49
Rural/Small Town	27	32	29
School Type			
Public	97	97	95
Nonpublic	3	3	5
Private	1	1	2
Catholic	3	2	3
BIA	0	0	0
DODEA	0	0	0

(continued)

Table A-22 (continued)
*Weighted Percentages of Accommodated Students in the Civics Main Samples
 by Subgroup Classification, Grades 4, 8, and 12*

	Grade 4	Grade 8	Grade 12
Modal Age			
< Modal Age	0	0	1
= Modal Age	46	31	29
> Modal Age	54	69	71
Type of Accommodation			
Large-Print Book	1	0	1
Extended Time	22	31	35
Read Aloud	3	4	1
Bilingual Dictionary	0	0	1
Small Groups	63	58	55
One on One	8	4	5
Scribe/Computer	2	2	0
Other	2	1	2
Accommodation Book			
Yes	98	99	99
No	2	1	1
SD/LEP			
SD Only	91	94	88
LEP Only	8	4	9
SD & LEP	1	2	3

Appendix B

SUMMARY INFORMATION FOR THE NAEP 1998 STATE SAMPLES AND FOR WEIGHTING THE NAEP 1998 STATE SAMPLES

Keith F. Rust and Leslie Wallace
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This appendix supplements the text of Chapters 4 and 11 (State Sampling and Weighting Procedures and Variance Estimation). It contains summary information for the 1998 NAEP state samples and includes the following tables:

Table B-1 Weighted Mean Values Derived from Sampled Public Schools - Grade 4, Reading

Table B-2 Weighted Mean Values Derived from Sampled Public Schools - Grade 8, Reading

Table B-3 Weighted Mean Values Derived from Sampled Public Schools - Grade 8, Writing

Table B-4 Weighted Mean Values Derived from Sampled Nonpublic Schools - Grade 4, Reading

Table B-5 Weighted Mean Values Derived from Sampled Nonpublic Schools - Grade 8, Reading

Table B-6 Weighted Mean Values Derived from Sampled Nonpublic Schools - Grade 8, Writing

Table B-7 Weighted Student Percentages Derived From Sampled Public Schools - Grade 4,
Reading

Table B-8 Weighted Student Percentages Derived From Sampled Public Schools - Grade 8,
Reading

Table B-9 Weighted Student Percentages Derived from Sampled Public Schools - Grade 8,
Writing

Table B-10 Weighted Student Percentages Derived From All Schools Sampled - Grade 4, Reading

Table B-11 Weighted Student Percentages Derived From All Schools Sampled - Grade 8, Reading

Table B-12 Weighted Student Percentages Derived From All Schools Sampled - Grade 8, Writing

Table B-13 Final Collapsed Levels Used for Raking Dimensions for All Jurisdictions - Grade 4
Reading

Table B-14 Final Collapsed Levels Used for Raking Dimensions for All Jurisdictions - Grade 8
Reading

Table B-15 Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Table B-16 Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Table B-17 Distribution of Selected Nonpublic Schools by Sampling Strata, Fourth Grade

- Table B-18 Distribution of Selected Nonpublic Schools by Sampling Strata, Eighth Grade
- Table B-19 Weighted School Participation Rates and Sample Counts - Grade 4, Reading for Public Schools
- Table B-20 Weighted School Participation Rates and Sample Counts - Grade 4, Reading for Nonpublic Schools
- Table B-21 Weighted School Participation Rates and Sample Counts - Grade 8, Reading and Writing for Public Schools
- Table B-22 Weighted School Participation Rates and Sample Counts - Grade 8, Reading and Writing for Nonpublic Schools
- Table B-23 Weighted School Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples - Grade 4, Reading for Public Schools
- Table B-24 Weighted School Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples - Grade 4, Reading for Nonpublic Schools
- Table B-25 Weighted School Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples - Grade 8, Reading for Public Schools
- Table B-26 Weighted School Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples - Grade 8, Reading for Nonpublic Schools
- Table B-27 Weighted School Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples - Grade 8, Writing for Public Schools
- Table B-28 Weighted School Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples - Grade 8, Writing for Nonpublic Schools
- Table B-29 Results of the Logistic Regression Analysis of School Nonresponse - Grade 4 Reading
- Table B-30 Results of the Logistic Regression Analysis of School Nonresponse - Grade 8 Reading
- Table B-31 Results of the Logistic Regression Analysis of School Nonresponse - Grade 8 Writing

Table B-1
Weighted Mean Values Derived from Sampled Public Schools - Grade 4, Reading

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived from Full Sample				Weighted Mean Value Derived from Responding Sample with Substitutes and School Nonresponse Adjustment			
		Percent Black	Percent Hispanic	Median Income	Type of Location	Percent Black	Percent Hispanic	Median Income	Type of Location
Alabama	90.81	35.11	0.37	\$23,727	4.43	34.19	0.33	\$24,267	4.35
Arizona	97.86	3.89	29.31	\$30,835	2.50	3.97	29.59	\$30,897	2.46
Arkansas	97.39	22.46	1.04	\$22,164	4.88	23.31	1.03	\$22,180	4.91
California	79.92	7.79	38.31	\$35,521	2.64	7.05	37.10	\$36,059	2.55
Colorado	95.43	6.19	14.44	\$33,220	3.45	6.54	14.01	\$33,073	3.44
Connecticut	98.22	12.54	11.61	\$47,008	3.87	12.75	11.73	\$46,816	3.86
Delaware	100.00	28.96	3.74	\$28,464	3.54	28.96	3.74	\$28,464	3.54
District of Columbia	100.00	86.04	6.88	\$28,020	1.00	86.04	6.88	\$28,020	1.00
DoDEA/ DDESS	100.00	—	—	\$23,976	3.61	—	—	\$23,976	3.61
DoDEA/ DoDDS	100.00	—	—	—	—	—	—	—	—
Florida	99.04	26.76	13.68	\$28,805	3.07	26.61	13.64	\$28,775	3.07
Georgia	99.05	38.77	1.65	\$30,325	4.22	39.58	1.63	\$30,167	4.19
Hawaii	100.00	3.31	4.69	\$35,848	3.48	3.31	4.69	\$35,848	3.48
Illinois	84.13	20.92	11.54	\$34,772	3.18	26.33	12.89	\$33,986	2.71
Iowa	83.94	3.71	1.78	\$27,640	5.01	4.29	1.96	\$27,782	4.93
Kansas	70.42	8.89	5.80	\$30,715	4.48	10.19	6.14	\$29,960	4.49
Kentucky	92.39	9.95	0.28	\$24,466	4.75	9.41	0.28	\$24,361	4.83
Louisiana	100.00	43.59	0.86	\$23,560	3.97	44.94	0.86	\$23,560	3.94
Maine	95.99	0.78	0.42	\$28,760	5.89	0.82	0.42	\$28,828	5.89
Maryland	88.42	33.69	3.19	\$40,410	3.34	33.67	3.36	\$40,583	3.36
Massachusetts	88.15	7.94	8.72	\$41,555	3.75	7.75	8.70	\$40,595	3.76
Michigan	89.62	17.00	3.15	\$32,952	3.78	18.78	3.22	\$32,174	3.82
Minnesota	85.82	5.81	1.58	\$33,160	4.17	5.91	1.69	\$32,920	4.19

(continued)

Table B-1 (continued)
Weighted Mean Values Derived from Sampled Public Schools - Grade 4, Reading

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived from Full Sample				Weighted Mean Value Derived from Responding Sample with Substitutes and School Nonresponse Adjustment			
		Percent Black	Percent Hispanic	Median Income	Type of Location	Percent Black	Percent Hispanic	Median Income	Type of Location
Mississippi	94.12	47.48	0.25	\$21,459	5.39	47.68	0.26	\$21,440	5.38
Missouri	99.03	14.93	1.03	\$28,886	4.10	14.96	1.05	\$28,870	4.08
Montana	78.48	0.59	1.68	\$24,569	5.34	0.62	1.52	\$24,679	5.29
Nevada	100.00	10.32	16.02	\$32,280	2.76	10.32	16.02	\$32,280	2.76
New Hampshire	70.48	0.86	0.85	\$40,014	4.98	0.83	0.84	\$39,927	4.97
New Mexico	99.06	2.66	47.20	\$24,434	3.99	2.67	46.93	\$24,488	3.99
New York	83.92	17.90	16.39	\$34,708	2.96	19.77	16.23	\$34,077	2.89
North Carolina	99.05	29.41	1.91	\$28,065	4.36	29.35	1.96	\$28,170	4.36
Oklahoma	100.00	9.94	4.83	\$25,948	4.06	9.94	4.83	\$25,948	4.06
Oregon	94.23	2.17	7.27	\$30,173	3.78	2.37	7.08	\$30,601	3.76
Rhode Island	100.00	7.20	10.21	\$31,644	3.75	7.20	10.21	\$31,644	3.75
South Carolina	97.02	41.37	0.62	\$27,099	4.59	41.65	0.61	\$26,915	4.59
Tennessee	97.15	24.30	0.58	\$25,857	3.78	24.40	0.61	\$26,071	3.74
Texas	97.08	16.14	34.49	\$28,298	2.90	15.92	34.93	\$28,322	2.87
Utah	100.00	0.62	5.68	\$32,177	3.94	0.62	5.68	\$32,177	3.94
Virgin Islands	100.00	82.83	14.89	—	7.00	82.83	14.89	—	7.00
Virginia	100.00	25.72	3.25	\$38,201	3.83	25.72	3.25	\$38,201	3.83
Washington	89.25	4.79	7.77	\$34,636	3.53	4.76	7.85	\$34,527	3.54
West Virginia	100.00	3.81	0.21	\$22,356	5.55	3.81	0.21	\$22,356	5.55
Wisconsin	82.04	10.03	3.65	\$32,285	3.96	10.37	3.93	\$32,058	4.00
Wyoming	100.00	1.04	6.40	\$30,865	5.15	1.04	6.40	\$30,865	5.15

Table B-2
Weighted Mean Values Derived from Sampled Public Schools - Grade 8, Reading

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived From Full Sample				Weighted Mean Value Derived from Responding Sample with Substitutes and School Nonresponse Adjustment			
		Percent Black	Percent Hispanic	Median Income	Type of Location	Percent Black	Percent Hispanic	Median Income	Type of Location
Alabama	90.94	36.04	0.46	\$23,757	4.51	36.11	0.46	\$24,546	4.44
Arizona	97.48	4.17	27.95	\$30,706	2.61	4.17	27.85	\$30,711	2.57
Arkansas	96.79	23.18	0.99	\$22,166	5.00	23.98	0.98	\$22,175	4.94
California	83.74	8.64	36.69	\$36,334	2.58	9.12	38.89	\$36,126	2.55
Colorado	96.57	4.80	18.18	\$32,528	3.38	5.17	18.76	\$32,016	3.38
Connecticut	99.07	12.71	10.13	\$45,855	4.06	12.71	10.13	\$45,905	4.06
Delaware	100.00	29.33	3.49	\$35,472	3.89	29.33	3.49	\$35,472	3.89
District of Columbia	100.00	87.33	6.90	\$30,015	1.00	87.33	6.90	\$30,015	1.00
DoDEA/DDESS	100.00	—	—	\$23,801	3.13	—	—	\$23,801	3.13
DoDEA/DoDDS	100.00	—	—	—	—	—	—	—	—
Florida	100.00	27.56	12.02	\$28,843	2.88	27.56	12.02	\$28,843	2.88
Georgia	100.00	37.20	1.72	\$30,407	4.20	37.58	1.75	\$30,484	4.21
Hawaii	100.00	2.32	4.96	\$35,496	3.69	2.32	4.96	\$35,496	3.69
Illinois	81.12	20.86	11.93	\$34,509	3.15	24.16	13.22	\$33,802	2.98
Kansas	70.60	7.97	5.15	\$31,206	4.48	8.87	5.34	\$30,095	4.48
Kentucky	87.32	10.26	0.28	\$23,952	4.70	10.11	0.24	\$23,797	4.69
Louisiana	100.00	41.69	1.03	\$23,383	4.00	40.74	1.05	\$23,518	4.09
Maine	97.33	0.68	0.37	\$28,822	5.83	0.67	0.39	\$28,803	5.83
Maryland	85.45	34.50	2.89	\$41,452	3.33	34.61	3.11	\$42,032	3.30
Massachusetts	89.20	7.86	9.61	\$41,967	3.72	7.84	9.89	\$42,087	3.75
Minnesota	73.73	4.69	1.79	\$33,552	4.15	5.56	1.94	\$34,415	4.14

(continued)

Table B-2 (continued)
Weighted Mean Values Derived from Sampled Public Schools - Grade 8, Reading

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived From Full Sample				Weighted Mean Value Derived from Responding Sample with Substitutes and School Nonresponse Adjustment			
		Percent Black	Percent Hispanic	Median Income	Type of Location	Percent Black	Percent Hispanic	Median Income	Type of Location
Mississippi	92.16	49.41	0.11	\$21,266	5.38	49.81	0.12	\$21,272	5.37
Missouri	96.51	16.07	0.66	\$28,409	4.15	16.41	0.64	\$28,465	4.14
Montana	77.81	0.32	1.51	\$24,647	5.46	0.38	1.53	\$24,357	5.37
Nevada	99.08	9.26	15.33	\$32,757	2.72	9.31	15.36	\$32,733	2.72
New Mexico	96.37	2.11	45.88	\$24,403	4.18	2.13	45.85	\$24,525	4.18
New York	77.27	19.20	16.29	\$35,042	3.06	20.29	19.15	\$34,111	2.88
North Carolina	99.94	30.84	1.39	\$28,520	4.32	30.83	1.38	\$28,518	4.32
Oklahoma	100.00	8.95	3.56	\$25,690	4.31	8.95	3.56	\$25,690	4.31
Oregon	87.53	2.41	5.56	\$30,064	3.81	2.62	5.58	\$30,411	3.71
Rhode Island	100.00	6.14	8.07	\$32,573	3.76	6.14	8.07	\$32,573	3.76
South Carolina	94.51	41.24	0.51	\$27,018	4.51	41.45	0.51	\$27,031	4.51
Tennessee	89.03	22.51	0.58	\$26,085	3.76	21.91	0.51	\$26,615	3.77
Texas	95.78	13.09	33.47	\$28,382	3.09	12.68	32.84	\$28,330	3.09
Utah	100.00	0.49	4.63	\$32,171	3.94	0.49	4.63	\$32,171	3.94
Virgin Islands	100.00	84.29	15.45	—	7.00	84.29	15.45	—	7.00
Virginia	100.00	26.61	2.35	\$38,728	3.82	26.61	2.35	\$38,728	3.82
Washington	86.13	4.58	6.26	\$34,473	3.61	4.52	6.40	\$34,681	3.64
West Virginia	100.00	3.28	0.13	\$22,394	5.48	3.28	0.13	\$22,394	5.48
Wisconsin	73.18	7.99	3.15	\$32,278	4.13	9.56	3.67	\$31,386	4.15
Wyoming	94.91	0.84	6.33	\$31,294	5.15	0.87	6.32	\$31,584	5.15

Table B-3
Weighted Mean Values Derived from Sampled Public Schools - Grade 8, Writing

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived from Full Sample				Weighted Mean Value Derived from Responding Sample with Substitutes and School Nonresponse Adjustment			
		Percent Black	Percent Hispanic	Median Income	Type of Location	Percent Black	Percent Hispanic	Median Income	Type of Location
Alabama	90.31	36.11	0.46	\$23,703	4.50	35.96	0.46	\$24,467	4.44
Arizona	97.84	4.23	27.28	\$30,917	2.55	4.22	27.20	\$30,954	2.51
Arkansas	96.79	23.73	0.98	\$22,211	5.00	24.54	0.97	\$22,222	4.94
California	83.15	8.35	36.80	\$36,356	2.59	8.77	39.24	\$36,184	2.55
Colorado	96.57	4.92	18.20	\$32,609	3.35	5.16	18.49	\$32,136	3.35
Connecticut	99.07	12.71	10.13	\$45,855	4.06	12.71	10.13	\$45,905	4.06
Delaware	100.00	29.31	3.49	\$35,484	3.89	29.31	3.49	\$35,484	3.89
District of Columbia	100.00	87.33	6.90	\$29,977	1.00	87.33	6.90	\$29,977	1.00
DoDEA/DDESS	100.00	—	—	\$24,229	3.26	—	—	\$24,229	3.26
DoDEA/DoDDS	100.00	—	—	—	—	—	—	—	—
Florida	100.00	27.38	11.95	\$28,800	2.91	27.38	11.95	\$28,800	2.91
Georgia	100.00	37.20	1.72	\$30,407	4.20	37.58	1.75	\$30,484	4.21
Hawaii	100.00	2.34	4.84	\$35,546	3.66	2.34	4.84	\$35,546	3.66
Illinois	80.28	20.91	11.39	\$34,569	3.21	24.30	12.59	\$33,968	3.04
Kentucky	87.14	10.41	0.29	\$24,020	4.67	10.25	0.25	\$23,851	4.66
Louisiana	100.00	42.61	1.02	\$23,443	3.97	42.08	1.03	\$23,562	4.04
Maine	97.34	0.63	0.39	\$28,769	5.85	0.63	0.41	\$28,753	5.85
Maryland	86.42	34.50	2.89	\$41,452	3.33	34.63	3.11	\$41,845	3.30
Massachusetts	89.28	7.81	9.54	\$41,838	3.75	7.79	9.82	\$41,943	3.77
Minnesota	73.51	4.72	1.80	\$33,491	4.16	5.60	1.95	\$34,356	4.15
Mississippi	92.16	49.25	0.11	\$21,275	5.38	49.66	0.12	\$21,277	5.37

(continued)

Table B-3 (continued)
Weighted Mean Values Derived from Sampled Public Schools - Grade 8, Writing

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived from Full Sample				Weighted Mean Value Derived from Responding Sample with Substitutes and School Nonresponse Adjustment			
		Percent Black	Percent Hispanic	Median Income	Type of Location	Percent Black	Percent Hispanic	Median Income	Type of Location
Missouri	97.08	16.37	0.67	\$28,644	4.10	16.72	0.65	\$28,717	4.09
Montana	77.60	0.34	1.45	\$24,700	5.45	0.36	1.53	\$24,505	5.36
Nevada	99.08	9.26	15.57	\$32,788	2.72	9.32	15.61	\$32,764	2.72
New Mexico	96.40	2.09	45.88	\$24,324	4.21	2.12	45.99	\$24,469	4.19
New York	77.27	19.20	16.29	\$35,042	3.06	20.29	19.15	\$34,111	2.88
North Carolina	100.00	30.84	1.38	\$28,472	4.31	30.84	1.38	\$28,472	4.31
Oklahoma	100.00	8.99	3.56	\$25,777	4.31	8.99	3.56	\$25,777	4.31
Oregon	87.53	2.42	5.84	\$30,089	3.83	2.64	5.91	\$30,473	3.73
Rhode Island	100.00	6.14	8.10	\$32,571	3.77	6.14	8.10	\$32,571	3.77
South Carolina	94.48	41.42	0.51	\$27,090	4.50	41.63	0.51	\$27,103	4.50
Tennessee	89.03	22.48	0.58	\$26,073	3.76	21.88	0.52	\$26,604	3.77
Texas	96.41	12.83	33.97	\$28,487	3.07	12.55	33.34	\$28,433	3.07
Utah	100.00	0.49	4.63	\$32,148	3.94	0.49	4.63	\$32,148	3.94
Virgin Islands	100.00	84.29	15.45	—	7.00	84.29	15.45	—	7.00
Virginia	100.00	26.61	2.35	\$38,728	3.82	26.61	2.35	\$38,728	3.82
Washington	86.59	4.63	6.33	\$34,606	3.58	4.57	6.49	\$34,764	3.60
West Virginia	100.00	3.36	0.12	\$22,408	5.49	3.36	0.12	\$22,408	5.49
Wisconsin	72.91	8.02	3.16	\$32,321	4.11	9.63	3.67	\$31,384	4.13
Wyoming	100.00	0.87	6.23	\$31,336	5.13	0.87	6.23	\$31,336	5.13

Table B-4
Weighted Mean Values Derived from Sampled Nonpublic Schools – Grade 4, Reading

Jurisdiction	Weighted Participation Rate after Substitution (%)	Weighted Mean Value Derived from Full Sample		Weighted Mean Values Derived from Responding Sample, with Substitutes and School Nonresponse Adjustment	
		Percent Catholic	Percent Urban	Percent Catholic	Percent Urban
Colorado	85.98	38	94	49	100
Connecticut	81.59	76	94	77	92
Florida	78.21	35	95	45	94
Georgia	80.08	12	80	15	84
Hawaii	85.46	39	84	42	86
Iowa	91.89	75	48	82	48
Louisiana	80.86	57	86	57	79
Massachusetts	84.12	72	100	79	100
Michigan	73.38	49	89	49	85
Minnesota	81.21	65	75	66	69
Missouri	79.81	70	85	80	91
Montana	87.76	56	5	64	0
Nebraska	98.90	75	64	80	62
Nevada	88.57	29	98	37	98
New Mexico	91.48	23	57	32	68
North Carolina	90.44	10	81	12	76
Rhode Island	95.94	80	94	89	93
South Carolina	95.80	17	70	20	69
Utah	75.49	29	96	39	95
Virgin Islands	96.29	14	0	14	0
Washington	76.74	36	97	33	96
West Virginia	85.63	74	58	95	75
Wyoming	96.10	51	49	68	43

Table B-5*Weighted Mean Values Derived from Sampled Nonpublic Schools – Grade 8, Reading*

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived from Full Sample		Weighted Mean Values Derived from Responding Sample, with Substitutes and School Nonresponse Adjustment	
		Percent Catholic	Percent Urban	Percent Catholic	Percent Urban
Arkansas	85.71	23	80	26	93
California	79.46	53	97	66	96
Colorado	100.00	44	100	37	100
Connecticut	84.02	75	93	81	100
Florida	73.72	34	100	46	100
Georgia	100.00	21	72	21	72
Louisiana	77.87	70	92	70	93
Maryland	82.35	57	98	69	100
Missouri	89.62	85	83	91	81
Montana	81.78	64	24	67	30
Nebraska	89.01	70	62	79	62
Nevada	88.29	39	100	49	100
New Mexico	83.14	35	60	37	50
New York	72.51	52	93	71	95
North Carolina	83.60	13	73	16	81
Rhode Island	85.33	80	97	86	96
Virgin Islands	100.00	13	0	13	0
Washington	100.00	61	100	49	100
West Virginia	87.38	58	71	67	81
Wyoming	95.33	49	56	51	58

Table B-6*Weighted Mean Values Derived from Sampled Nonpublic Schools – Grade 8, Writing*

Jurisdiction	Weighted Participation Rate After Substitution (%)	Weighted Mean Value Derived from Full Sample		Weighted Mean Values Derived from Responding Sample, with Substitutes and School Nonresponse Adjustment	
		Percent Catholic	Percent Urban	Percent Catholic	Percent Urban
Arkansas	82.74	0.34	0.70	0.47	0.87
California	84.12	0.44	0.96	0.53	0.95
Florida	84.97	0.38	0.94	0.50	0.92
Georgia	87.91	0.14	0.84	0.16	0.81
Louisiana	90.30	0.74	0.89	0.74	0.88
Maryland	78.57	0.51	0.91	0.55	0.95
Massachusetts	70.49	0.69	1.00	0.84	1.00
Montana	100.00	0.47	0.27	0.52	0.20
Nebraska	91.58	0.71	0.60	0.71	0.62
Nevada	95.06	0.67	0.77	0.70	0.81
New Mexico	80.00	0.32	0.63	0.36	0.50
New York	80.16	0.57	0.99	0.57	1.00
North Carolina	78.35	0.00	0.88	0.00	0.92
Rhode Island	82.09	0.81	0.92	0.86	0.95
Virgin Islands	82.01	0.24	0.00	0.30	0.00
Washington	92.25	0.33	0.89	0.30	0.88
West Virginia	84.99	0.58	0.49	0.68	0.58
Wyoming	76.55	0.39	0.37	0.52	0.17

Table B-7

Weighted Student Percentages Derived from Sampled Public Schools – Grade 4, Reading

Jurisdiction	Weighted Student Participation (%)	Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
		Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
Alabama	96.00	51.11	60.44	31.02	5.34	5.18	0.13	121.40	51.19	61.19	30.17	5.68	5.30	0.11	121.43
Arizona	93.84	49.22	54.35	4.66	33.81	5.57	8.49	120.29	49.43	54.09	4.63	33.92	5.49	8.47	120.29
Arkansas	95.06	50.53	69.94	21.53	5.91	5.86	0.52	120.81	50.43	70.48	20.47	6.14	5.76	0.51	120.77
California	93.19	48.12	41.90	9.01	33.58	3.01	15.48	117.42	47.54	42.48	8.56	33.49	2.83	15.81	117.45
Colorado	94.08	49.90	69.24	5.71	20.17	6.82	2.40	120.17	49.50	68.77	5.82	20.48	6.81	2.42	120.14
Connecticut	94.04	47.93	72.74	10.53	12.37	6.24	1.55	117.78	47.95	72.64	10.57	12.34	6.24	1.54	117.75
Delaware	93.88	50.79	60.14	26.26	9.42	10.22	2.10	117.82	51.01	59.97	26.03	9.64	10.20	2.12	117.77
District of Columbia	93.06	48.64	6.77	75.98	13.98	3.12	4.20	118.56	48.05	6.98	74.81	14.68	3.03	4.30	118.50
DoDEA/DDESS	95.53	49.10	46.83	28.39	18.58	3.65	0.39	119.27	49.35	46.73	28.60	18.89	3.63	0.41	119.27
DoDEA/DoDDS	94.03	50.26	47.31	17.48	15.31	3.17	0.94	118.78	50.31	47.22	17.88	15.63	3.15	0.97	118.77
Florida	93.87	49.85	52.68	24.28	19.68	8.71	3.17	120.47	49.91	52.08	24.38	20.14	8.62	3.24	120.45
Georgia	95.51	49.57	50.85	37.85	7.50	4.73	0.40	120.95	49.73	51.16	37.37	7.54	4.74	0.47	120.92
Hawaii	94.50	50.65	19.72	5.12	19.76	6.75	4.32	116.50	50.43	19.95	5.26	20.75	6.75	4.34	116.50
Illinois	94.84	50.45	56.87	22.24	14.76	5.77	2.50	120.35	50.56	61.97	18.61	13.09	4.96	2.14	120.35
Iowa	96.10	50.71	86.36	3.97	6.19	8.67	0.75	120.83	50.55	86.49	3.80	6.20	8.31	0.66	120.83
Kansas	93.36	53.13	74.33	9.80	10.42	6.47	1.26	121.41	52.86	73.93	9.83	10.70	6.39	1.29	121.36
Kentucky	95.97	50.40	86.27	8.37	3.22	4.69	0.12	120.47	50.04	85.60	8.83	3.41	4.70	0.12	120.42
Louisiana	95.19	49.82	47.58	41.90	7.29	5.48	0.54	121.01	49.34	50.10	39.58	7.11	5.46	0.52	121.01
Maine	92.99	51.46	91.15	1.58	4.02	7.24	0.70	120.11	51.42	90.57	1.57	4.31	7.18	0.75	120.12
Maryland	95.05	50.32	52.70	32.49	8.41	4.88	1.26	116.73	49.68	52.61	32.16	8.72	4.80	1.35	116.71
Massachusetts	94.90	48.44	78.27	6.32	9.95	11.14	2.46	119.27	48.39	77.77	6.49	10.10	11.05	2.59	119.28
Michigan	93.38	50.03	70.63	16.96	8.65	2.82	0.89	119.38	49.37	72.49	13.99	8.99	3.03	0.84	119.32
Minnesota	93.91	50.87	82.27	5.59	6.28	9.24	3.00	120.74	50.59	81.93	5.73	6.56	9.24	3.02	120.69
Mississippi	94.96	49.44	50.16	42.71	5.59	2.89	0.09	122.63	49.28	50.00	42.55	5.87	2.89	0.09	122.58

(continued)

Table B-7 (continued)

Weighted Student Percentages Derived from Sampled Public Schools – Grade 4, Reading

Jurisdiction	Weighted Student Participation (%)	Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
		Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
		Missouri	95.31	51.12	75.35	15.15	6.60	7.42	0.47	122.12	51.46	75.51	14.74	6.73	7.33	0.48	122.13
Montana	95.43	50.38	83.04	1.19	6.85	6.70	0.27	121.67	50.51	82.99	1.15	6.98	6.75	0.27	121.73
Nevada	94.40	50.50	60.20	9.12	22.93	4.53	4.57	119.13	50.31	59.53	8.77	23.67	4.48	4.62	119.14
New Hampshire	92.91	51.16	89.35	1.60	5.52	10.00	0.47	120.04	50.81	89.02	1.61	5.80	9.99	0.48	120.06
New Mexico	94.45	49.47	39.39	3.38	45.86	6.81	13.07	120.40	49.48	39.09	3.44	46.02	6.76	13.31	120.41
New York	95.09	48.91	57.15	17.28	19.57	4.76	2.47	117.54	48.71	59.78	15.91	18.38	4.84	2.31	117.62
North Carolina	94.00	50.18	62.61	26.74	6.89	6.12	1.28	119.64	49.71	62.01	26.86	7.15	6.03	1.39	119.66
Oklahoma	94.92	49.96	69.79	7.58	9.65	4.65	2.00	123.03	49.85	70.22	7.62	9.49	4.66	2.00	123.02
Oregon	94.54	49.60	74.75	3.13	13.04	9.41	4.85	119.85	49.15	74.58	2.97	13.09	9.25	5.07	119.81
Rhode Island	94.23	52.30	74.93	6.68	13.92	9.80	4.27	117.93	52.88	74.59	6.77	14.11	9.85	4.24	117.91
South Carolina	95.45	48.80	54.38	37.06	5.84	7.04	0.51	119.06	48.59	53.58	37.47	6.14	7.03	0.51	119.09
Tennessee	94.43	50.00	69.68	23.79	4.30	8.73	0.47	120.80	50.11	69.89	23.37	4.46	8.83	0.50	120.78
Texas	95.32	51.42	48.64	14.57	32.94	8.97	6.71	120.76	50.14	47.13	15.10	33.86	8.41	7.07	120.69
Utah	95.26	52.00	78.63	1.79	13.79	6.39	2.83	119.94	52.07	78.26	1.88	14.18	6.28	2.94	119.92
Virgin Islands	95.62	47.55	3.16	75.45	19.33	0.64	1.55	118.73	47.37	3.28	75.10	19.47	0.60	1.60	118.66
Virginia	94.79	49.98	62.85	23.67	7.92	6.62	1.82	119.61	49.96	62.51	23.57	8.22	6.61	1.84	119.63
Washington	94.42	50.92	73.82	4.58	10.28	7.82	3.07	120.40	51.03	73.45	4.44	10.71	7.82	3.04	120.36
West Virginia	94.03	48.50	88.10	3.63	5.30	3.36	0.11	120.73	48.25	87.63	3.63	5.61	3.36	0.12	120.67
Wisconsin	94.95	50.98	79.07	9.17	8.05	6.33	1.29	120.71	50.71	79.00	8.85	8.21	6.21	1.33	120.70
Wyoming	95.19	51.34	80.91	1.20	11.70	9.97	0.51	121.06	51.41	80.51	1.23	11.95	9.95	0.53	121.05

Table B-8

Weighted Student Percentages Derived from Sampled Public Schools – Grade 8, Reading

Jurisdiction	Weighted Student Participation (%)	Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
		Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
		Alabama	92.73	50.07	59.48	33.81	4.39	5.93	0.15	170.16	49.94	62.04	31.49	4.18	5.96	0.10	170.21
Arizona	90.61	50.70	57.72	4.23	29.99	5.42	7.06	169.18	50.59	57.16	4.19	30.38	5.12	7.29	169.14
Arkansas	92.23	51.50	72.67	21.49	3.29	5.43	0.44	169.73	51.45	73.06	20.68	3.60	5.62	0.46	169.63
California	90.86	49.53	35.90	9.18	41.56	5.58	13.95	166.64	50.22	37.43	8.33	41.03	5.73	13.86	166.63
Colorado	91.07	52.19	68.12	4.63	22.40	7.01	3.03	169.04	52.19	68.28	4.63	22.07	6.94	3.08	168.99
Connecticut	91.38	52.27	74.04	11.64	9.87	8.28	0.59	166.93	52.01	74.05	11.42	9.78	8.30	0.58	166.87
Delaware	90.73	50.48	62.72	27.20	6.75	9.04	1.31	167.38	50.41	62.77	26.48	7.24	9.07	1.37	167.35
District of Columbia	85.62	46.28	4.31	84.37	8.76	5.95	1.53	168.33	47.36	4.44	82.74	9.99	5.78	1.74	168.16
DoDEA/DDESS	95.02	53.32	41.09	27.04	26.13	5.59	0.76	167.75	52.52	41.24	26.59	26.30	5.52	0.83	167.70
DoDEA/DoDDS	93.59	51.45	46.94	19.01	14.20	4.93	0.80	167.07	51.24	46.68	19.10	14.86	4.95	0.78	167.05
Florida	89.41	49.42	52.68	25.03	18.34	9.86	2.78	169.79	49.37	51.88	24.36	19.50	9.62	3.04	169.68
Georgia	90.33	50.95	57.26	34.31	4.64	6.28	1.09	170.12	51.13	57.31	34.01	4.84	6.42	1.08	170.07
Hawaii	90.80	50.30	16.20	2.53	15.13	7.33	2.81	165.58	50.47	15.89	2.70	16.48	7.10	3.00	165.51
Illinois	92.99	46.83	58.19	21.62	15.95	6.23	2.01	168.61	47.51	64.51	17.40	14.24	6.01	1.68	168.55
Kansas	91.56	50.49	80.50	8.05	7.84	6.49	1.13	169.91	50.25	79.98	8.15	8.17	6.53	1.10	169.89
Kentucky	93.17	51.80	87.54	9.14	1.75	5.50	0.30	169.92	51.83	87.33	9.07	1.93	5.51	0.30	169.85
Louisiana	91.38	49.80	55.98	37.63	4.50	6.91	—	171.41	50.04	55.09	38.15	4.73	6.87	—	171.19
Maine	91.98	50.55	93.47	1.07	1.90	8.16	0.25	169.97	50.17	93.12	1.10	2.08	8.13	0.28	169.89
Maryland	88.89	50.61	56.52	32.38	6.17	6.51	0.55	165.59	50.51	57.38	30.62	6.87	6.44	0.70	165.52
Massachusetts	90.50	50.75	76.45	6.93	11.12	11.18	0.96	168.28	50.87	75.92	6.88	11.43	11.11	1.04	168.25
Minnesota	92.92	51.21	83.93	4.17	4.49	8.40	2.74	169.44	51.62	84.16	3.82	4.42	8.42	2.70	169.40
Mississippi	92.18	48.87	49.94	44.20	4.14	4.31	0.18	172.43	48.49	49.88	44.02	4.50	4.28	0.22	172.27
Missouri	92.30	51.56	80.38	14.82	2.39	7.79	0.28	170.45	51.74	81.16	13.91	2.53	7.82	0.25	170.42
Montana	91.53	47.98	86.93	0.69	3.85	7.74	0.34	169.94	48.31	87.04	0.76	4.00	7.90	0.34	170.01
Nevada	90.78	51.98	62.49	8.05	21.90	5.91	3.39	167.87	51.84	61.77	8.14	22.40	5.85	3.48	167.86

(continued)

Table B-8 (continued)

Weighted Student Percentages Derived from Sampled Public Schools – Grade 8, Reading

Jurisdiction	Weighted Student Participation (%)	Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
		Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
New York	88.35	49.57	54.97	18.14	20.43	5.83	2.09	167.20	49.74	56.80	16.59	19.87	5.69	1.94	167.07
North Carolina	92.34	48.67	63.34	27.76	3.83	6.60	0.56	168.64	48.48	63.15	27.75	3.95	6.56	0.59	168.54
Oklahoma	91.20	48.99	71.06	8.49	6.84	3.74	1.40	171.49	49.37	71.66	8.51	7.20	3.68	1.46	171.41
Oregon	89.34	50.38	81.20	2.56	8.43	8.85	2.24	168.49	51.06	81.13	2.54	8.14	8.81	2.19	168.48
Rhode Island	88.47	50.69	79.34	5.86	10.29	9.85	1.93	167.42	50.18	78.88	5.92	10.61	9.79	1.96	167.32
South Carolina	92.55	48.55	56.29	37.53	4.08	6.20	0.23	168.89	48.37	55.99	37.45	4.36	6.18	0.26	168.79
Tennessee	90.45	48.90	73.42	21.33	3.32	8.98	0.28	170.02	48.86	73.49	20.79	3.63	8.89	0.26	169.86
Texas	92.76	50.31	47.80	11.96	35.59	8.67	5.53	169.99	49.83	47.53	12.20	35.46	8.71	5.41	169.94
Utah	89.68	50.96	85.95	0.55	7.60	5.97	1.64	167.97	51.06	85.70	0.52	7.71	5.92	1.59	168.01
Virgin Islands	87.84	48.63	0.96	80.19	17.35	—	—	170.89	47.66	1.11	78.88	18.48	—	—	170.72
Virginia	91.20	49.93	64.99	24.65	5.71	6.54	0.63	168.06	49.89	64.81	24.35	5.99	6.52	0.66	167.96
Washington	90.95	51.80	75.05	3.52	10.30	7.41	1.77	168.77	51.22	74.92	3.52	10.41	7.34	1.85	168.71
West Virginia	91.07	50.03	92.46	3.39	1.87	6.57	0.06	169.56	49.69	92.03	3.45	2.07	6.56	0.06	169.50
Wisconsin	92.44	50.50	81.27	9.42	4.96	7.78	0.59	169.56	50.51	81.71	8.88	5.22	7.72	0.60	169.54
Wyoming	91.15	51.88	84.34	1.20	9.12	8.08	0.28	169.78	52.30	84.22	1.25	9.22	8.08	0.27	169.75

Table B-9

Weighted Student Percentages Derived from Sampled Public Schools – Grade 8, Writing

Jurisdiction	Weighted Student Participation (%)	Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
		Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
		Alabama	92.42	49.82	62.44	30.83	4.17	6.28	0.29	170.13	49.25	64.05	28.82	4.43	6.22	0.28	170.18
Arizona	89.23	51.19	55.02	3.83	31.01	5.83	7.50	169.14	50.85	54.75	3.87	31.25	6.08	7.44	169.08
Arkansas	92.28	50.05	71.01	21.85	4.56	6.71	0.44	169.79	49.94	71.11	21.38	4.79	6.94	0.38	169.72
California	91.78	47.92	34.75	7.95	44.30	5.34	13.71	166.34	47.71	36.88	7.15	43.18	4.92	13.95	166.30
Colorado	90.78	50.80	69.54	4.49	20.75	6.59	2.88	168.97	50.79	69.06	4.48	20.99	6.54	2.94	168.91
Connecticut	90.21	50.64	73.78	11.79	11.48	8.51	0.32	166.98	50.28	73.88	11.35	11.75	8.53	0.30	166.94
Delaware	90.95	50.81	63.15	25.19	7.72	10.71	0.86	167.24	50.70	63.47	24.04	8.27	10.68	0.89	167.22
District of Columbia	84.59	48.49	3.96	84.05	8.83	5.79	2.00	168.40	48.27	4.10	82.82	9.67	5.73	2.14	168.13
DoDEA/DDESS	95.45	50.37	41.56	26.73	25.99	6.31	0.88	167.82	50.61	41.24	26.08	26.98	6.31	0.88	167.77
DoDEA/DoDDS	92.77	49.32	47.11	17.64	15.90	4.55	1.11	167.17	49.42	46.47	18.03	16.79	4.52	1.14	167.12
Florida	88.60	49.67	52.08	25.70	18.36	9.36	2.55	169.78	49.01	50.61	26.04	19.18	9.24	2.72	169.74
Georgia	90.08	51.63	57.50	34.02	5.02	5.95	0.95	169.94	51.69	57.81	33.50	5.13	5.95	0.87	169.90
Hawaii	91.62	52.58	14.52	3.16	18.67	7.67	3.80	165.71	52.59	14.93	3.21	19.94	7.69	3.84	165.68
Illinois	92.42	51.29	59.54	21.37	15.76	6.87	2.19	168.83	52.00	64.34	17.52	14.57	6.74	2.08	168.66
Kentucky	92.82	49.39	85.50	9.58	2.84	6.89	0.38	169.41	49.50	85.43	9.49	2.96	6.86	0.36	169.35
Louisiana	90.65	47.39	55.85	37.62	4.10	8.00	0.19	170.91	47.32	55.20	37.59	4.67	8.10	0.20	170.73
Maine	91.04	49.49	92.03	1.59	2.16	8.36	0.45	169.45	49.40	91.53	1.59	2.39	8.35	0.46	169.42
Maryland	88.53	50.69	55.25	33.37	5.94	10.64	0.60	165.91	50.02	55.89	31.94	6.26	10.62	0.61	165.84
Massachusetts	91.89	50.82	77.89	5.41	11.29	12.25	0.68	168.09	51.00	77.61	5.53	11.34	12.30	0.62	168.02
Minnesota	90.23	51.61	82.44	4.76	5.20	8.69	3.20	169.52	51.14	82.25	4.83	5.68	8.41	3.46	169.52
Mississippi	92.20	49.57	48.72	44.43	4.61	4.90	0.07	171.98	49.31	48.55	44.11	4.97	4.94	0.04	171.81
Missouri	91.84	51.01	79.92	13.51	4.05	10.41	0.38	170.73	50.58	80.34	12.80	4.20	10.25	0.38	170.70
Montana	92.50	49.82	86.17	1.09	5.68	8.39	0.29	170.39	50.36	85.90	1.25	6.02	8.56	0.31	170.40
Nevada	89.22	50.94	59.46	8.40	23.53	7.33	4.11	167.88	50.49	58.68	8.24	24.17	7.17	4.28	167.88
New York	87.35	51.20	53.49	18.29	21.48	8.04	1.96	167.03	50.64	55.21	16.63	20.72	7.98	2.01	167.07

(continued)

Table B-9 (continued)
Weighted Student Percentages Derived from Sampled Public Schools – Grade 8, Writing

Jurisdiction	Weighted Student Participation (%)	Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
		Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
North Carolina	92.50	51.36	62.14	27.11	4.45	9.52	0.93	169.01	50.91	61.81	26.97	4.83	9.33	1.12	169.02
Oklahoma	92.16	52.05	73.50	7.23	7.46	4.17	0.81	171.38	51.90	73.04	7.07	7.97	4.20	0.78	171.28
Oregon	89.36	51.54	79.82	2.36	9.87	10.50	1.76	168.38	51.21	79.82	2.44	9.66	10.28	1.75	168.36
Rhode Island	88.92	50.97	76.08	7.17	11.86	10.93	2.43	167.39	50.81	75.46	7.01	12.22	10.84	2.50	167.28
South Carolina	91.43	51.35	54.73	36.74	5.06	7.19	0.08	169.11	51.22	54.46	36.46	5.46	7.17	0.09	168.98
Tennessee	90.97	48.24	73.97	20.59	3.29	8.94	0.54	170.13	48.21	73.29	20.81	3.69	8.73	0.56	169.97
Texas	92.77	49.05	47.70	11.92	36.25	9.52	4.60	170.04	49.14	47.65	12.15	36.08	9.49	4.62	170.00
Utah	89.86	49.51	84.23	1.17	8.93	5.45	1.23	167.86	48.80	83.60	1.19	9.24	5.50	1.22	167.84
Virgin Islands	86.97	46.60	0.85	76.63	20.54	0.14	—	170.83	44.43	0.99	76.46	20.43	0.14	—	170.64
Virginia	90.91	51.80	64.62	24.24	6.09	8.95	0.89	168.21	51.94	64.57	23.88	6.35	8.91	0.93	168.11
Washington	89.17	49.21	74.38	4.31	10.96	7.65	2.37	168.83	48.92	73.60	3.99	11.58	7.56	2.49	168.82
West Virginia	90.97	52.03	90.33	3.96	2.83	9.23	0.03	169.65	51.55	89.83	4.08	3.10	9.27	—	169.58
Wisconsin	92.14	50.85	80.31	8.89	6.15	6.75	0.76	169.38	50.93	80.50	7.99	6.62	6.60	0.93	169.36
Wyoming	92.13	52.46	83.09	1.35	10.34	6.86	0.11	169.83	52.18	82.87	1.45	10.66	6.86	0.09	169.76

Table B-10
Weighted Student Percentages Derived from All Schools Sampled – Grade 4, Reading

Jurisdiction	Weighted Student Participation (%)		Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
	Public	Non Public	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
Arkansas	95.06	96.98	50.75	71.06	20.49	5.77	5.69	0.49	120.79	50.57	71.89	19.17	6.00	5.53	0.47	120.79
Colorado	94.08	95.32	50.09	70.23	5.39	19.46	6.61	2.23	120.14	49.53	70.02	5.42	19.58	6.50	2.21	120.15
Connecticut	94.04	95.31	47.49	72.91	9.99	12.93	5.96	1.40	117.71	47.54	72.79	10.07	12.89	5.97	1.39	117.68
Florida	93.87	93.85	49.92	55.32	21.75	19.47	8.11	2.80	120.48	49.93	54.84	21.85	19.80	8.02	2.87	120.47
Georgia	95.51	97.18	49.73	51.20	37.30	7.63	4.45	0.41	120.85	49.92	51.36	36.93	7.71	4.50	0.47	120.84
Hawaii	94.50	96.79	50.94	19.68	4.64	18.83	5.93	3.83	116.65	50.88	19.95	4.72	19.58	5.88	3.82	116.66
Illinois	94.84	96.20	50.69	61.00	18.54	15.27	4.63	2.00	120.13	50.66	64.20	16.35	13.88	4.18	1.83	120.17
Iowa	96.10	98.11	51.16	87.45	3.61	5.85	7.74	0.68	120.89	51.01	87.42	3.51	5.91	7.53	0.61	120.88
Louisiana	95.19	94.91	49.46	53.50	36.24	6.88	5.24	0.44	120.79	49.04	55.41	34.38	6.81	5.24	0.43	120.82
Maine	92.99	94.01	51.37	91.12	1.55	4.13	7.16	0.76	120.09	51.25	90.53	1.53	4.48	7.05	0.80	120.10
Maryland	95.05	98.02	50.10	54.85	30.97	8.21	4.43	1.09	116.80	49.59	54.71	30.70	8.50	4.35	1.17	116.77
Massachusetts	94.90	93.50	48.45	79.02	6.05	9.77	9.96	2.22	119.33	48.45	78.65	6.12	9.93	9.87	2.33	119.34
Michigan	93.38	94.69	49.92	73.20	15.16	8.25	2.48	0.76	119.33	49.26	74.43	12.82	8.60	2.72	0.74	119.28
Minnesota	93.91	95.07	51.26	83.57	4.97	5.92	8.40	2.64	120.73	50.93	83.24	5.10	6.19	8.39	2.65	120.68
Mississippi	94.96	97.94	49.12	52.69	40.19	5.36	2.65	0.08	122.48	49.01	52.81	39.75	5.61	2.62	0.15	122.39
Missouri	95.31	95.89	51.31	76.24	14.78	6.20	6.60	0.41	122.01	51.31	76.44	14.37	6.35	6.46	0.41	121.99
Montana	95.43	93.62	50.55	82.44	1.18	7.15	6.66	0.26	121.68	50.68	82.36	1.14	7.29	6.72	0.26	121.74
Nevada	94.40	95.32	50.69	60.44	8.87	23.00	4.35	4.39	119.15	50.39	60.11	8.45	23.52	4.27	4.41	119.18
New Hampshire	92.91		51.16	89.35	1.60	5.52	10.00	0.47	120.04	50.81	89.02	1.61	5.80	9.99	0.48	120.06
New Mexico	94.45	95.25	49.91	38.32	3.23	44.99	6.88	12.25	120.38	49.92	36.96	3.20	43.99	6.71	13.07	120.36
New York	95.09	95.54	49.50	54.91	18.84	20.08	3.93	2.04	117.47	49.28	57.36	17.50	19.07	4.07	1.94	117.54
North Carolina	94.00	95.40	50.23	63.68	25.95	6.68	6.23	1.24	119.63	49.84	63.27	25.90	6.83	6.05	1.32	119.62

(continued)

Table B-10 (continued)
Weighted Student Percentages Derived from All Schools Sampled – Grade 4, Reading

Jurisdiction	Weighted Student Participation (%)		Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
	Public	Non Public	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
Rhode Island	94.23	94.57	51.77	76.39	6.17	13.21	8.96	3.83	117.80	52.48	76.13	6.20	13.30	8.91	3.77	117.78
South Carolina	95.45	94.42	48.74	56.89	34.59	5.66	6.56	0.47	119.10	48.43	56.53	34.53	5.87	6.48	0.47	119.13
Virgin Islands	95.62	95.95	46.62	7.13	71.17	18.72	0.50	1.19	118.12	46.58	7.27	70.86	18.93	0.46	1.23	118.06
Washington	94.42	94.90	50.38	74.20	4.44	10.13	7.34	2.86	120.38	50.45	73.84	4.31	10.52	7.34	2.83	120.34
West Virginia	94.03	100.00	48.15	88.43	3.51	5.08	3.25	0.10	120.69	47.84	87.99	3.49	5.40	3.23	0.11	120.64
Wisconsin	94.95	96.43	51.30	80.41	7.73	8.10	5.33	1.07	120.60	51.02	79.58	7.40	8.34	5.19	1.10	120.54
Wyoming	95.19	90.68	51.43	80.89	1.16	11.89	9.67	0.50	121.02	51.64	80.54	1.19	12.09	9.57	0.51	121.01

Table B-11
Weighted Student Percentages Derived from All Schools Sampled – Grade 8, Reading

Jurisdiction	Weighted Student Participation (%)		Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
	Public	Non Public	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
Arizona	90.61	89.53	50.20	54.64	4.28	29.03	5.35	6.63	169.09	50.33	53.77	4.28	29.39	5.11	7.11	169.14
Arkansas	92.23	96.96	51.33	73.46	20.77	3.23	5.18	0.42	169.68	51.34	73.83	19.99	3.53	5.36	0.44	169.59
California	90.86	96.6	50.75	37.94	8.30	39.55	4.93	12.21	166.52	51.27	39.10	7.66	39.38	5.14	12.34	166.52
Colorado	91.07	96.94	51.82	68.75	4.62	21.91	6.73	2.91	169.02	51.86	69.03	4.60	21.52	6.63	2.94	168.96
Connecticut	91.38	94.65	52.25	74.96	10.84	9.77	8.40	0.54	166.86	52.03	74.96	10.62	9.69	8.41	0.54	166.79
Florida	89.41	92.73	49.33	54.30	23.25	17.89	9.04	2.58	169.66	49.48	53.60	22.67	18.95	8.81	2.82	169.56
Georgia	90.33	95.24	50.84	58.81	32.73	4.71	5.83	1.01	169.95	51.07	58.72	32.55	4.92	5.98	1.01	169.93
Illinois	92.99	97.51	46.96	60.66	19.89	14.80	5.42	1.66	168.38	47.54	65.66	16.61	13.47	5.38	1.44	168.37
Louisiana	91.38	94.9	50.73	62.47	31.36	4.19	6.27	—	170.81	50.80	61.33	32.14	4.43	6.27	—	170.66
Maine	91.98	95.7	50.65	93.32	1.07	2.09	7.90	0.24	169.90	50.22	92.98	1.10	2.28	7.86	0.27	169.83
Maryland	88.89	95.63	50.98	59.98	29.56	5.91	5.81	0.48	165.56	50.90	60.68	28.02	6.55	5.75	0.61	165.49
Massachusetts	90.50	95.86	49.23	77.60	6.77	10.39	10.17	0.97	168.11	49.43	77.18	6.68	10.65	10.11	1.05	168.09
Missouri	92.30	96.15	52.30	80.93	14.29	2.30	7.30	0.25	170.36	52.40	81.61	13.47	2.44	7.34	0.22	170.34
Montana	91.53	98.34	47.93	87.08	0.73	3.72	7.33	0.32	169.94	48.25	87.17	0.79	3.87	7.50	0.32	170.01
Nevada	90.78	96.33	52.05	62.66	7.91	21.79	5.74	3.25	167.87	51.84	62.21	7.96	22.13	5.63	3.31	167.85
New Mexico	89.71	95.48	48.98	37.49	1.98	49.26	9.79	6.91	169.21	48.69	37.58	2.05	49.53	9.86	6.83	169.16
New York	88.35	94.92	50.20	56.87	17.72	19.32	5.37	1.81	166.91	50.29	58.16	16.49	18.98	5.28	1.71	166.81
North Carolina	92.34	95.56	48.67	64.39	26.70	3.94	6.26	0.53	168.60	48.56	63.95	26.89	4.09	6.27	0.57	168.52
Rhode Island	88.47	94.3	50.27	79.43	6.33	9.86	8.76	1.69	167.32	49.76	78.95	6.42	10.16	8.71	1.72	167.23
Virgin Islands	87.84	96.19	48.39	4.84	76.64	16.31	—	—	169.81	47.68	5.19	75.48	17.18	—	—	169.64
Washington	90.95	94.04	51.69	75.68	3.41	9.87	7.20	1.67	168.75	50.95	75.72	3.36	9.90	7.02	1.72	168.69
West Virginia	91.07	93.08	49.67	92.39	3.29	1.85	6.46	0.05	169.51	49.37	92.00	3.35	2.04	6.46	0.06	169.45
Wyoming	91.15	98.57	52.02	84.32	1.28	9.06	7.95	0.27	169.80	52.45	84.19	1.33	9.16	7.93	0.27	169.77

Table B-12
Weighted Student Percentages Derived from All Schools Sampled – Grade 8, Writing

Jurisdiction	Weighted Student Participation (%)		Weighted Estimates Derived from Full Sample							Weighted Estimates Derived from Assessed Sample with Student Nonresponse Adjustment						
	Public	Non Public	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)	Percent Male	Percent White	Percent Black	Percent Hispanic	Percent SD	Percent LEP	Mean Age (Months)
Arizona	89.23	96.03	51.35	54.77	3.98	31.23	5.73	7.11	169.19	51.15	54.73	4.01	31.33	6.03	7.10	169.12
Arkansas	92.28	95.89	49.76	72.36	20.67	4.37	6.36	0.42	169.74	49.57	72.48	20.13	4.57	6.51	0.36	169.67
California	91.78	97.52	47.26	36.37	7.65	42.59	4.91	12.48	166.30	47.16	38.11	6.97	41.75	4.57	12.85	166.27
Colorado	90.78	93.39	50.35	69.39	4.49	20.76	7.04	2.80	168.97	50.34	69.06	4.42	20.96	6.92	2.83	168.96
Connecticut	90.21	92.76	50.59	74.31	11.62	11.14	8.10	0.29	166.90	50.18	74.33	11.29	11.38	8.12	0.27	166.86
Florida	88.60	94.21	49.66	54.15	24.30	17.49	9.01	2.36	169.74	49.06	52.90	24.49	18.16	8.85	2.49	169.70
Georgia	90.08	94.18	51.38	59.51	32.00	4.99	5.57	0.89	169.82	51.43	59.79	31.54	5.07	5.58	0.82	169.78
Illinois	92.42	96.26	51.26	64.60	17.91	14.13	5.75	1.78	168.69	51.88	67.68	15.31	13.47	5.84	1.76	168.56
Louisiana	90.65	96.78	48.35	60.15	33.36	4.07	7.27	0.15	170.32	48.34	59.23	33.68	4.57	7.40	0.17	170.22
Maine	91.04	96.25	49.72	91.74	1.57	2.42	7.93	0.43	169.41	49.68	91.24	1.57	2.65	7.93	0.43	169.37
Maryland	88.53	96.39	50.75	57.18	31.36	5.60	9.37	0.55	165.91	50.41	57.98	29.84	5.84	9.26	0.55	165.83
Massachusetts	91.89	92.21	49.44	78.44	5.36	10.65	11.32	0.67	168.01	49.51	78.08	5.52	10.74	11.37	0.62	167.95
Missouri	91.84	96.2	50.90	81.41	12.07	4.03	9.34	0.37	170.62	50.97	81.84	11.45	4.13	9.11	0.37	170.56
Montana	92.50	95.68	49.92	84.82	1.06	6.02	7.95	0.27	170.33	50.36	84.64	1.20	6.36	8.17	0.29	170.33
Nevada	89.22	92.47	50.87	59.80	8.20	23.45	7.11	3.95	167.86	50.36	58.96	8.06	24.14	6.96	4.12	167.85
New Mexico	88.95	95.79	52.01	35.37	2.44	49.33	11.27	8.21	169.03	51.59	35.84	2.60	49.18	11.10	7.98	168.96
New York	87.35	95.56	51.07	53.80	19.71	20.13	6.98	2.62	166.62	50.60	55.12	18.24	19.65	7.02	2.60	166.70
North Carolina	92.50	95.16	51.21	63.52	25.83	4.50	8.97	0.86	168.99	50.82	63.15	25.73	4.87	8.80	1.04	169.00
Rhode Island	88.92	95.87	51.02	76.70	7.16	11.60	9.62	2.10	167.19	50.99	76.08	7.02	11.97	9.54	2.16	167.10
Virgin Islands	86.97	98.09	45.90	4.88	71.76	19.96	0.11	—	169.46	44.26	5.10	71.58	19.94	0.11	—	169.31
Washington	89.17	94.43	49.23	74.78	4.43	10.64	7.49	2.25	168.85	48.99	74.00	4.14	11.27	7.37	2.36	168.82
West Virginia	90.97	97.69	51.66	90.32	3.89	2.88	8.90	0.03	169.57	51.18	89.87	4.01	3.14	8.93	—	169.49
Wyoming	92.13	94.81	52.80	82.12	1.34	10.37	6.94	0.11	169.87	52.54	81.98	1.43	10.69	6.94	0.08	169.81

Table B-13
Final Collapsed Levels Used for Raking Dimensions for All Jurisdictions
Grade 4, Reading

Jurisdiction	Gender	Age	Race	SD	LEP
Alabama	X	X	W / *	—	—
Arizona	X	X	H / *	X	X
Arkansas	X	X	W / *	—	—
California	X	X	W / H / *	X	X
Colorado	X	X	W / H / *	X	X
Connecticut	X	X	W / H / *	X	X
Delaware	X	X	W / B / *	—	—
District of Columbia	X	X	B / *	X	X
DoDEA/DDESS	X	X	W / *	—	—
DoDEA/DoDDS	X	X	W / *	—	—
Florida	X	X	W / H / *	X	X
Georgia	X	X	W / *	—	—
Hawaii	X	X	H / A / *	X	X
Illinois	X	X	W / H / *	X	X
Iowa	X	X	—	—	—
Kansas	X	X	W / *	—	—
Kentucky	X	X	—	—	—
Louisiana	X	X	B / *	—	—
Maine	X	X	—	—	—
Maryland	X	X	W / *	—	—
Massachusetts	X	X	W / H / *	X	X
Michigan	X	X	—	—	-
Minnesota	X	X	W / *	X	X
Mississippi	—	X	B / *	—	—
Missouri	X	X	W / *	—	—
Montana	X	X	—	—	—
Nevada	X	X	W / H / *	X	X
New Hampshire	X	X	—	—	—
New Mexico	X	X	W / H / *	X	X

LEGEND

- X = Variable was not collapsed for raking
- W = White
- B = Black
- A = Asian or Pacific Islander
- N = American Indian or Alaskan Native
- = Variable was not used as a raking dimension (i.e., all levels were combined)
- * = All other levels of the dimension were combined into one level (e.g., in fourth grade for Florida, there are three levels of race: White, Hispanic, and all others combined)

(continued)

Table B-13 (continued)
Final Collapsed Levels Used for Raking Dimensions for All Jurisdictions
Grade 4, Reading

Jurisdiction	Gender	Age	Race	SD	LEP
New York	X	X	W / *	X	X
North Carolina	X	X	W / B / *	—	—
Oklahoma	X	X	W / N / *	—	—
Oregon	X	X	W / *	X	X
Rhode Island	X	X	W / *	X	X
South Carolina	X	X	W / *	—	—
Tennessee	X	X	W / *	—	—
Texas	X	X	W / H / *	X	X
Utah	X	X	W / *	X	X
Virgin Islands	—	—	—	—	—
Virginia	X	X	W / B / *	—	—
Washington	X	X	W / H / *	X	X
West Virginia	X	X	-	-	-
Wisconsin	X	X	W / B / *	X	X
Wyoming	X	X	W / *	-	-

LEGEND

- X = Variable was not collapsed for raking
- W = White
- B = Black
- A = Asian or Pacific Islander
- N = American Indian or Alaskan Native
- = Variable was not used as a raking dimension (i.e., all levels were combined)
- * = All other levels of the dimension were combined into one level (e.g., in fourth grade for Florida, there are three levels of race: White, Hispanic, and all others combined)

Table B-14
Final Collapsed Levels Used for Raking Dimensions for All Jurisdictions
Grade 8, Reading

Jurisdiction	Gender	Age	Race	SD	LEP
Alabama	X	X	W / *	—	—
Arizona	X	X	W / H / *	X	X
Arkansas	X	X	W / *	—	—
California	X	X	H / *	X	X
Colorado	X	X	H / *	X	X
Connecticut	X	X	W / *	—	—
Delaware	X	X	W / *	—	—
District of Columbia	X	X	—	—	—
DoDEA/DDESS	—	—	—	—	—
DoDEA/DoDDS	X	—	—	—	—
Florida	X	X	W / H / *	X	X
Georgia	X	X	W / *	—	—
Hawaii	X	X	W / A / *	X	X
Illinois	X	X	W / *	—	X
Kansas	X	X	—	—	—
Kentucky	—	X	—	—	—
Louisiana	X	X	W / *	—	—
Maine	X	X	—	—	—
Maryland	X	—	W / *	—	—
Massachusetts	X	X	W / *	—	—
Minnesota	X	X	W / *	X	X
Mississippi	—	X	B / *	—	—
Missouri	X	X	W / *	—	—
Montana	X	X	—	—	—
Nevada	X	X	H / *	X	X
New Mexico	X	X	H / *	X	X
New York	X	X	W / *	X	X
North Carolina	X	X	W / *	—	—
Oklahoma	X	X	W / N / *	—	—

LEGEND

- X = Variable was not collapsed for raking
- W = White
- B = Black
- A = Asian or Pacific Islander
- N = American Indian or Alaskan Native
- = Variable was not used as a raking dimension (i.e., all levels were combined)
- * = All other levels of the dimension were combined into one level (e.g., in eighth grade for Oklahoma, there are three levels of race: White, American Indian, and all others combined)

(continued)

Table B-14 (continued)
Final Collapsed Levels Used for Raking Dimensions for All Jurisdictions
Grade 8, Reading

Jurisdiction	Gender	Age	Race	SD	LEP
Oregon	X	X	W / *	X	X
Rhode Island	X	X	W / *	X	X
South Carolina	X	X	/ *	—	—
Tennessee	X	X	W / *	—	—
Texas	X	X	W / H / *	X	X
Utah	X	—	W / *	—	X
Virgin Islands	—	—	—	—	—
Virginia	X	X	W / *	—	—
Washington	X	X	W / *	X	X
West Virginia	X	X	—	—	—
Wisconsin	X	X	—	—	—
Wyoming	X	X	W / *	—	—

LEGEND

- X = Variable was not collapsed for raking
- W = White
- B = Black
- A = Asian or Pacific Islander
- N = American Indian or Alaskan Native
- = Variable was not used as a raking dimension (i.e., all levels were combined)
- * = All other levels of the dimension were combined into one level (e.g., in eighth grade for Oklahoma, there are three levels of race: White, American Indian, and all others combined)

Table B-15*Distribution of Selected Public Schools by Sampling Strata, Fourth Grade*

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Alabama				
Small	Small	Large/Small Town	Low	1
Small	Large	Large/Mid-Size Central City	Low	11
Small	Large	Large/Mid- size Central City	Medium	10
Small	Large	Large/Mid- size Central City	High	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	9
Small	Large	Large/Small Town	Low	8
Small	Large	Large/Small Town	Medium	7
Small	Large	Large/Small Town	High	7
Small	Large	Rural	Low	8
Small	Large	Rural	Medium	9
Small	Large	Rural	High	9
Arizona				
Small	Small	Large Central City	High	1
Small	Small	Large/Small Town/Rural	Medium	1
Small	Large	Large Central City	Low	16
Small	Large	Large Central City	Medium	16
Small	Large	Large Central City	High	16
Small	Large	Mid-Size Central City	Low	4
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	4
Small	Large	Urban Fringe of Large Central City	Low	9
Small	Large	Urban Fringe of Large Central City	Medium	8
Small	Large	Urban Fringe of Large Central City	High	8
Small	Large	Large/Small Town/Rural	Low	6
Small	Large	Large/Small Town/Rural	Medium	6
Small	Large	Large/Small Town/Rural	High	6
Arkansas				
Small	Small	Rural	Low	1
Small	Small	Rural	High	1
Small	Large	Mid-Size Central City	Low	10
Small	Large	Mid-Size Central City	Medium	10
Small	Large	Mid-Size Central City	High	10
Small	Large	Urban Fringe of Large Central City	None	11
Small	Large	Large/Small Town	Low	12
Small	Large	Large/Small Town	Medium	11
Small	Large	Large/Small Town	High	12
Small	Large	Rural	Low	10
Small	Large	Rural	Medium	9
Small	Large	Rural	High	10

Table B-15 (continued)

Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
California				
Small	Small	Large Central City	Low	1
Small	Small	Large/Small Town/Rural	Low	1
Small	Large	Large Central City	Low	9
Small	Large	Large Central City	Medium	9
Small	Large	Large Central City	High	9
Small	Large	Mid-Size Central City	Low	5
Small	Large	Mid-Size Central City	Medium	6
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	18
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	18
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	18
Small	Large	Large/Small Town/Rural	Low	2
Small	Large	Large/Small Town/Rural	Medium	2
Small	Large	Large/Small Town/Rural	High	3
Colorado				
Small	Small	Rural	Low	2
Small	Small	Rural	High	1
Small	Large	Large Central City	Low	7
Small	Large	Large Central City	Medium	7
Small	Large	Large Central City	High	7
Small	Large	Mid-Size Central City	Low	5
Small	Large	Mid-Size Central City	Medium	5
Small	Large	Mid-Size Central City	High	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	15
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	15
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	15
Small	Large	Large/Small Town	Low	4
Small	Large	Large/Small Town	Medium	4
Small	Large	Large/Small Town	High	4
Small	Large	Rural	Low	4
Small	Large	Rural	Medium	4
Small	Large	Rural	High	4

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Connecticut				
Small	Large	Mid-Size Central City	Low Black/Low Hispanic	8
Small	Large	Mid-Size Central City	Low Black/High Hispanic	7
Small	Large	Mid-Size Central City	High Black/Low Hispanic	7
Small	Large	Mid-Size Central City	High Black/High Hispanic	7
Small	Large	Urban Fringe of Large Central City	None	23
Small	Large	Urban Fringe of Mid-Size Central City	Low	7
Small	Large	Urban Fringe of Mid-Size Central City	Medium	7
Small	Large	Urban Fringe of Mid-Size Central City	High	8
Small	Large	Large/Small Town	None	17
Small	Large	Rural	None	15
Florida				
Small	Large	Large Central City	Low Black/Low Hispanic	4
Small	Large	Large Central City	Low Black/High Hispanic	5
Small	Large	Large Central City	High Black/Low Hispanic	4
Small	Large	Large Central City	High Black/High Hispanic	4
Small	Large	Mid-Size Central City	Low	9
Small	Large	Mid-Size Central City	Medium	10
Small	Large	Mid-Size Central City	High	11
Small	Large	Urban Fringe of Large Central City	Low	8
Small	Large	Urban Fringe of Large Central City	Medium	8
Small	Large	Urban Fringe of Large Central City	High	8
Small	Large	Urban Fringe of Mid-Size Central City	Low	7
Small	Large	Urban Fringe of Mid-Size Central City	Medium	6
Small	Large	Urban Fringe of Mid-Size Central City	High	7
Small	Large	Large/Small Town/Rural	Low	5
Small	Large	Large/Small Town/Rural	Medium	4
Small	Large	Large/Small Town/Rural	High	5

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Georgia				
Small	Large	Large/Mid-Size Central City	Low	6
Small	Large	Large/Mid-Size Central City	Medium	6
Small	Large	Large/Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	15
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	14
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	15
Small	Large	Large/Small Town	Low	8
Small	Large	Large/Small Town	Medium	9
Small	Large	Large/Small Town	High	7
Small	Large	Rural	Low	6
Small	Large	Rural	Medium	6
Small	Large	Rural	High	7
Hawaii				
Large	Small	Rural	None	1
Large	Large	Large Central City	None	30
Large	Large	Urban Fringe of Large/Mid-Size Central City	None	42
Large	Large	Large/Small Town	None	20
Large	Large	Rural	None	13

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Illinois				
Small	Small	Large Central City	Low Black/Low Hispanic	5
Small	Small	Large Central City	Low Black/High Hispanic	6
Small	Small	Large Central City	High Black/Low Hispanic	6
Small	Small	Large Central City	High Black/High Hispanic	6
Small	Large	Large/Small Town/Rural	None	2
Small	Large	Large Central City	Low Black/Low Hispanic	1
Small	Large	Mid-Size Central City	Low	4
Small	Large	Mid-Size Central City	Medium	5
Small	Large	Mid-Size Central City	High	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	16
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	15
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	15
Small	Large	Large/Small Town/Rural	None	22
Iowa				
Small	Small	Rural	None	3
Small	Large	Mid-Size Central City	Low	9
Small	Large	Mid-Size Central City	Medium	9
Small	Large	Mid-Size Central City	High	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	11
Small	Large	Large/Small Town	None	32
Small	Large	Rural	None	35

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Kansas				
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	None	8
Small	Large	Large Central City	Low	4
Small	Large	Large Central City	Medium	4
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	6
Small	Large	Mid-Size Central City	Medium	6
Small	Large	Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large Central City	None	19
Small	Large	Large/Small Town	Low	9
Small	Large	Large/Small Town	Medium	10
Small	Large	Large/Small Town	High	9
Small	Large	Rural	None	26
Kentucky				
Small	Small	Rural	None	2
Small	Large	Large Central City	Low	4
Small	Large	Large Central City	Medium	3
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	5
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	19
Small	Large	Large/Small Town	None	27
Small	Large	Rural	None	35

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Louisiana				
Small	Small	Large/Small Town	Low	1
Small	Large	Large Central City	Low	3
Small	Large	Large Central City	Medium	4
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	9
Small	Large	Mid-Size Central City	Medium	9
Small	Large	Mid-Size Central City	High	8
Small	Large	Urban Fringe of Large Central City	Low	5
Small	Large	Urban Fringe of Large Central City	Medium	4
Small	Large	Urban Fringe of Large Central City	High	5
Small	Large	Urban Fringe of Mid-Size Central City	Low	5
Small	Large	Urban Fringe of Mid-Size Central City	Medium	6
Small	Large	Urban Fringe of Mid-Size Central City	High	5
Small	Large	Large/Small Town	Low	6
Small	Large	Large/Small Town	Medium	5
Small	Large	Large/Small Town	High	6
Small	Large	Rural	Low	7
Small	Large	Rural	Medium	7
Small	Large	Rural	High	7
Maine				
Small	Small	Mid-Size Central City	None	1
Small	Small	Small Town	None	1
Small	Small	Rural	None	12
Small	Large	Mid-Size Central City	None	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	12
Small	Large	Small Town	None	27
Small	Large	Rural	None	52

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Maryland				
Small	Small	Small Town/Rural	Low	1
Small	Large	Large/Mid-Size Central City	Low	7
Small	Large	Large/Mid-Size Central City	Medium	7
Small	Large	Large/Mid-Size Central City	High	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	22
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	21
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	21
Small	Large	Small Town/Rural	Low	6
Small	Large	Small Town/Rural	Medium	6
Small	Large	Small Town/Rural	High	6
Massachusetts				
Small	Large	Large/Mid-Size Central City	Low Black/Low Hispanic	7
Small	Large	Large/Mid-Size Central City	Low Black/High Hispanic	8
Small	Large	Large/Mid-Size Central City	High Black/Low Hispanic	8
Small	Large	Large/Mid-Size Central City	High Black/High Hispanic	7
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	43
Small	Large	Large/Small Town	None	20
Small	Large	Rural	None	12

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Michigan				
Small	Small	Large/Small Town/Rural	None	1
Small	Large	Large Central City	Low	3
Small	Large	Large Central City	Medium	4
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	6
Small	Large	Mid-Size Central City	Medium	7
Small	Large	Mid-Size Central City	High	7
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	44
Small	Large	Large/Small Town/Rural	None	30
Minnesota				
Small	Small	Rural	None	2
Small	Large	Large/Mid-Size Central City	Low	5
Small	Large	Large/Mid-Size Central City	Medium	6
Small	Large	Large/Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	46
Small	Large	Large/Small Town	None	18
Small	Large	Rural	None	23
Mississippi				
Small	Large	Mid-Size Central City	Low	4
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	5
Small	Large	Large/Small Town	Low	15
Small	Large	Large/Small Town	Medium	14
Small	Large	Large/Small Town	High	14
Small	Large	Rural	Low	11
Small	Large	Rural	Medium	11
Small	Large	Rural	High	11

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Missouri				
Small	Small	Rural	None	4
Small	Large	Large/Mid-Size Central City	Low	8
Small	Large	Large/Mid-Size Central City	Medium	8
Small	Large	Large/Mid-Size Central City	High	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	13
Small	Large	Large/Small Town	None	18
Small	Large	Rural	None	23
Montana				
Small	Small	Mid-Size Central City/Urban Fringe	None	1
Small	Small	Small Town	None	4
Small	Small	Rural	None	23
Small	Large	Mid-Size Central City/Urban Fringe	None	21
Small	Large	Large Town	None	11
Small	Large	Small Town	None	30
Small	Large	Rural	None	25

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Nevada				
Large	Small	Large/Small Town/Rural	Low	1
Large	Large	Large Central City	Low	12
Large	Large	Large Central City	Medium	12
Large	Large	Large Central City	High	13
Large	Large	Mid-Size Central City	Low	2
Large	Large	Mid-Size Central City	Medium	6
Large	Large	Mid-Size Central City	High	4
Large	Large	Urban Fringe of Large/Mid-Size Central City	Low	5
Large	Large	Urban Fringe of Large/Mid-Size Central City	Medium	4
Large	Large	Urban Fringe of Large/Mid-Size Central City	High	6
Large	Large	Large/Small Town/Rural	High	1
Small	Small	Large/Small Town/Rural	Low	1
Small	Small	Large/Small Town/Rural	High	1
Small	Large	Mid-Size Central City	Low	7
Small	Large	Mid-Size Central City	Medium	1
Small	Large	Mid-Size Central City	High	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	3
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	1
Small	Large	Large/Small Town/Rural	Low	6
Small	Large	Large/Small Town/Rural	Medium	6
Small	Large	Large/Small Town/Rural	High	7
New Hampshire				
Small	Small	Rural	None	5
Small	Large	Mid-Size Central City	None	20
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	21
Small	Large	Large/Small Town	None	25
Small	Large	Rural	None	38

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
New Mexico				
Large	Large	Large Central City	Low	9
Large	Large	Large Central City	Medium	8
Large	Large	Large Central City	High	9
Large	Large	Rural	Low	1
Small	Small	Rural	Low	1
Small	Small	Rural	Medium	2
Small	Small	Rural	High	1
Small	Large	Mid-Size Central City	Low	4
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	4
Small	Large	Large Town	Low	6
Small	Large	Large Town	Medium	4
Small	Large	Large Town	High	5
Small	Large	Small Town	Low	8
Small	Large	Small Town	Medium	8
Small	Large	Small Town	High	8
Small	Large	Rural	Low	5
Small	Large	Rural	Medium	4
Small	Large	Rural	High	5

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
New York				
Large	Large	Large/Mid-Size Central City	Low Black/Low Hispanic	6
Large	Large	Large/Mid-Size Central City	Low Black/High Hispanic	11
Large	Large	Large/Mid-Size Central City	High Black/Low Hispanic	12
Large	Large	Large/Mid-Size Central City	High Black/High Hispanic	7
Large	Large	Large/Small Town/Rural	None	1
Small	Large	Large/Mid-Size Central City	Low Black/Low Hispanic	6
Small	Large	Large/Mid-Size Central City	Low Black/High Hispanic	1
Small	Large	Large/Mid-Size Central City	High Black/Low Hispanic	1
Small	Large	Large/Mid-Size Central City	High Black/High Hispanic	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	12
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	12
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	12
Small	Large	Large/Small Town/Rural	None	20
North Carolina				
Small	Small	Rural	High	1
Small	Large	Large/Mid-Size Central City	Low	12
Small	Large	Large/Mid-Size Central City	Medium	12
Small	Large	Large/Mid-Size Central City	High	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	7
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	8
Small	Large	Large/Small Town	Low	6
Small	Large	Large/Small Town	Medium	6
Small	Large	Large/Small Town	High	6
Small	Large	Rural	Low	10
Small	Large	Rural	Medium	9
Small	Large	Rural	High	9

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Oklahoma				
Small	Small	Large/Small Town	None	1
Small	Small	Rural	None	6
Small	Large	Large/Mid-Size Central City	Low	10
Small	Large	Large/Mid-Size Central City	Medium	10
Small	Large	Large/Mid-Size Central City	High	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	28
Small	Large	Large/Small Town	None	25
Small	Large	Rural	None	21
Oregon				
Small	Small	Mid-Size Central City	Low	1
Small	Small	Urban Fringe of Large/Mid-Size Central City	Low	1
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	Low	2
Small	Small	Rural	High	1
Small	Large	Large Central City	Low	4
Small	Large	Large Central City	Medium	5
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	5
Small	Large	Mid-Size Central City	Medium	5
Small	Large	Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	12
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	13
Small	Large	Large/Small Town	Low	8
Small	Large	Large/Small Town	Medium	8
Small	Large	Large/Small Town	High	7
Small	Large	Rural	Low	4
Small	Large	Rural	Medium	4
Small	Large	Rural	High	5

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Rhode Island				
Small	Large	Mid-Size Central City	Low	13
Small	Large	Mid-Size Central City	Medium	12
Small	Large	Mid-Size Central City	High	12
Small	Large	Urban Fringe of Large Central City	None	11
Small	Large	Urban Fringe of Mid-Size Central City	None	30
Small	Large	Large/Small Town	None	17
Small	Large	Rural	None	10
South Carolina				
Small	Large	Mid-Size Central City	Low	9
Small	Large	Mid-Size Central City	Medium	9
Small	Large	Mid-Size Central City	High	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	11
Small	Large	Small Town	Low	8
Small	Large	Small Town	Medium	7
Small	Large	Small Town	High	8
Small	Large	Rural	Low	8
Small	Large	Rural	Medium	7
Small	Large	Rural	High	8

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Tennessee				
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	None	1
Small	Large	Large Central City	Low	8
Small	Large	Large Central City	Medium	8
Small	Large	Large Central City	High	9
Small	Large	Mid-Size Central City	Low	6
Small	Large	Mid-Size Central City	Medium	6
Small	Large	Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	21
Small	Large	Large/Small Town	Low	7
Small	Large	Large/Small Town	Medium	6
Small	Large	Large/Small Town	High	7
Small	Large	Rural	None	21
Texas				
Small	Small	Rural	Low	1
Small	Small	Rural	High	1
Small	Large	Large Central City	Low Hispanic/Low Black	9
Small	Large	Large Central City	Low Hispanic/High Black	9
Small	Large	Large Central City	High Hispanic/Low Black	10
Small	Large	Large Central City	High Hispanic/High Black	9
Small	Large	Mid-Size Central City	Low	6
Small	Large	Mid-Size Central City	Medium	6
Small	Large	Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	10
Small	Large	Large/Small Town	Low	4
Small	Large	Large/Small Town	Medium	4
Small	Large	Large/Small Town	High	4
Small	Large	Rural	Low	3
Small	Large	Rural	Medium	4
Small	Large	Rural	High	3

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Utah				
Small	Small	Rural	None	1
Small	Large	Mid-Size Central City	Low	11
Small	Large	Mid-Size Central City	Medium	12
Small	Large	Mid-Size Central City	High	11
Small	Large	Urban Fringe of Mid-Size Central City	None	45
Small	Large	Large/Small Town	None	15
Small	Large	Rural	None	11
Vermont				
Small	Small	Small Town	None	2
Small	Small	Rural	None	25
Small	Large	Mid-Size Central City/Urban Fringe	None	13
Small	Large	Small Town	None	26
Small	Large	Rural	None	58
Virginia				
Small	Small	Rural	Low	1
Small	Large	Large Central City	Low	4
Small	Large	Large Central City	Medium	3
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	8
Small	Large	Mid-Size Central City	Medium	8
Small	Large	Mid-Size Central City	High	7
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	12
Small	Large	Large/Small Town/Rural	Low	11
Small	Large	Large/Small Town/Rural	Medium	11
Small	Large	Large/Small Town/Rural	High	11

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Washington				
Small	Small	Large/Mid-Size Central City	High	1
Small	Small	Rural	Low	1
Small	Large	Large/Mid-Size Central City	Low	13
Small	Large	Large/Mid-Size Central City	Medium	12
Small	Large	Large/Mid-Size Central City	High	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	12
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	13
Small	Large	Large/Small Town	Low	4
Small	Large	Large/Small Town	Medium	5
Small	Large	Large/Small Town	High	4
Small	Large	Rural	Low	5
Small	Large	Rural	Medium	6
Small	Large	Rural	High	5
West Virginia				
Small	Small	Mid-Size Central City	None	1
Small	Small	Large/Small Town	None	1
Small	Small	Rural	None	6
Small	Large	Mid-Size Central City	None	14
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	18
Small	Large	Large/Small Town	None	20
Small	Large	Rural	None	51

Table B-15 (continued)
Distribution of Selected Public Schools by Sampling Strata, Fourth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Wisconsin				
Small	Small	Large/Small Town	None	1
Small	Small	Rural	None	2
Small	Large	Large Central City	Low	5
Small	Large	Large Central City	Medium	5
Small	Large	Large Central City	High	5
Small	Large	Mid-Size Central City	None	25
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	24
Small	Large	Large/Small Town	None	17
Small	Large	Rural	None	24
Wyoming				
Small	Small	Mid-Size Central City	Low	1
Small	Small	Large/Small Town	None	4
Small	Small	Rural	None	13
Small	Large	Mid-Size Central City/Urban Fringe	Low	10
Small	Large	Mid-Size Central City/Urban Fringe	Medium	10
Small	Large	Mid-Size Central City/Urban Fringe	High	10
Small	Large	Large/Small Town	None	52
Small	Large	Rural	None	21

Table B-16
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Alabama				
Small	Small	Large/Mid-Size Central City	Low	1
Small	Small	Rural	Low	1
Small	Large	Large/Mid-Size Central City	Low	9
Small	Large	Large/Mid-Size Central City	Medium	11
Small	Large	Large/Mid-Size Central City	High	10
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	8
Small	Large	Large/Small Town	Low	8
Small	Large	Large/Small Town	Medium	7
Small	Large	Large/Small Town	High	9
Small	Large	Rural	Low	10
Small	Large	Rural	Medium	10
Small	Large	Rural	High	11
Arizona				
Small	Small	Mid-Size Central City	Low	1
Small	Small	Large/Small Town/Rural	Medium	1
Small	Small	Large/Small Town/Rural	High	1
Small	Large	Large Central City	Low	17
Small	Large	Large Central City	Medium	15
Small	Large	Large Central City	High	16
Small	Large	Mid-Size Central City	Low	5
Small	Large	Mid-Size Central City	Medium	5
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large Central City	Low	8
Small	Large	Urban Fringe of Large Central City	Medium	7
Small	Large	Urban Fringe of Large Central City	High	6
Small	Large	Large/Small Town/Rural	Low	8
Small	Large	Large/Small Town/Rural	Medium	7
Small	Large	Large/Small Town/Rural	High	8

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Arkansas				
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	Low	1
Small	Small	Rural	High	1
Small	Large	Mid-Size Central City	Low	9
Small	Large	Mid-Size Central City	Medium	10
Small	Large	Mid-Size Central City	High	9
Small	Large	Urban Fringe of Large Central City	None	10
Small	Large	Large/Small Town	Low	13
Small	Large	Large/Small Town	Medium	12
Small	Large	Large/Small Town	High	13
Small	Large	Rural	Low	12
Small	Large	Rural	Medium	11
Small	Large	Rural	High	13
California				
Small	Small	Large/Small Town/Rural	Low	1
Small	Small	Large/Small Town/Rural	Medium	1
Small	Large	Large Central City	Low	9
Small	Large	Large Central City	Medium	7
Small	Large	Large Central City	High	9
Small	Large	Mid-Size Central City	Low	6
Small	Large	Mid-Size Central City	Medium	6
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	18
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	19
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	20
Small	Large	Large/Small Town/Rural	Low	2
Small	Large	Large/Small Town/Rural	Medium	3
Small	Large	Large/Small Town/Rural	High	2

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Colorado				
Small	Small	Large Central City	High	1
Small	Small	Rural	Low	1
Small	Small	Rural	Medium	1
Small	Small	Rural	High	1
Small	Large	Large Central City	Low	7
Small	Large	Large Central City	Medium	7
Small	Large	Large Central City	High	7
Small	Large	Mid-Size Central City	Low	5
Small	Large	Mid-Size Central City	Medium	5
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	14
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	14
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	14
Small	Large	Large/Small Town	Low	5
Small	Large	Large/Small Town	Medium	4
Small	Large	Large/Small Town	High	4
Small	Large	Rural	Low	6
Small	Large	Rural	Medium	5
Small	Large	Rural	High	6

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Connecticut				
Small	Large	Mid-Size Central City	Low Black/Low Hispanic	5
Small	Large	Mid-Size Central City	Low Black/High Hispanic	6
Small	Large	Mid-Size Central City	High Black/Low Hispanic	7
Small	Large	Mid-Size Central City	High Black/High Hispanic	7
Small	Large	Urban Fringe of Large Central City	Low	7
Small	Large	Urban Fringe of Large Central City	Medium	8
Small	Large	Urban Fringe of Large Central City	High	7
Small	Large	Urban Fringe of Mid-Size Central City	Low	9
Small	Large	Urban Fringe of Mid-Size Central City	Medium	8
Small	Large	Urban Fringe of Mid-Size Central City	High	8
Small	Large	Large/Small Town	None	17
Small	Large	Rural	None	17

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Florida				
Small	Small	Large/Small Town/Rural	Low	1
Small	Large	Large Central City	Low Black/Low Hispanic	5
Small	Large	Large Central City	Low Black/High Hispanic	4
Small	Large	Large Central City	High Black/Low Hispanic	4
Small	Large	Large Central City	High Black/High Hispanic	5
Small	Large	Mid-Size Central City	Low	10
Small	Large	Mid-Size Central City	Medium	10
Small	Large	Mid-Size Central City	High	10
Small	Large	Urban Fringe of Large Central City	Low	8
Small	Large	Urban Fringe of Large Central City	Medium	8
Small	Large	Urban Fringe of Large Central City	High	8
Small	Large	Urban Fringe of Mid-Size Central City	Low	7
Small	Large	Urban Fringe of Mid-Size Central City	Medium	7
Small	Large	Urban Fringe of Mid-Size Central City	High	7
Small	Large	Large/Small Town/Rural	Low	4
Small	Large	Large/Small Town/Rural	Medium	4
Small	Large	Large/Small Town/Rural	High	3

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Georgia				
Small	Large	Large/Mid-Size Central City	Low	5
Small	Large	Large/Mid-Size Central City	Medium	5
Small	Large	Large/Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	16
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	15
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	16
Small	Large	Large/Small Town	Low	10
Small	Large	Large/Small Town	Medium	9
Small	Large	Large/Small Town	High	9
Small	Large	Rural	Low	5
Small	Large	Rural	Medium	5
Small	Large	Rural	High	5
Illinois				
Large	Small	Large Central City	High Black/Low Hispanic	1
Large	Large	Large Central City	Low Black/Low Hispanic	6
Large	Large	Large Central City	Low Black/High Hispanic	6
Large	Large	Large Central City	High Black/Low Hispanic	7
Large	Large	Large Central City	High Black/High Hispanic	6
Small	Small	Rural	None	2
Small	Large	Mid-Size Central City	Low	4
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large Central City	Low	15
Small	Large	Urban Fringe of Large Central City	Medium	16
Small	Large	Urban Fringe of Large Central City	High	15
Small	Large	Large/Small Town	None	12
Small	Large	Rural	None	14

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Kansas				
Small	Small	Urban Fringe of Large/Mid-Size Central City	None	1
Small	Small	Rural	None	10
Small	Large	Large/Mid-Size Central City	Low	10
Small	Large	Large/Mid-Size Central City	Medium	9
Small	Large	Large/Mid-Size Central City	High	10
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	19
Small	Large	Large/Small Town	Low	10
Small	Large	Large/Small Town	Medium	9
Small	Large	Large/Small Town	High	10
Small	Large	Rural	None	37
Kentucky				
Small	Small	Urban Fringe of Large/Mid-Size Central City	None	1
Small	Small	Rural	None	1
Small	Large	Large Central City	Low	4
Small	Large	Large Central City	Medium	3
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	Low	4
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	19
Small	Large	Large/Small Town	None	34
Small	Large	Rural	None	32

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Louisiana				
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	High	1
Small	Large	Large/Mid-Size Central City	Low	13
Small	Large	Large/Mid-Size Central City	Medium	13
Small	Large	Large/Mid-Size Central City	High	11
Small	Large	Urban Fringe of Large Central City	Low	4
Small	Large	Urban Fringe of Large Central City	Medium	5
Small	Large	Urban Fringe of Large Central City	High	4
Small	Large	Urban Fringe of Mid-Size Central City	Low	6
Small	Large	Urban Fringe of Mid-Size Central City	Medium	7
Small	Large	Urban Fringe of Mid-Size Central City	High	6
Small	Large	Large/Small Town	Low	6
Small	Large	Large/Small Town	Medium	6
Small	Large	Large/Small Town	High	5
Small	Large	Rural	Low	8
Small	Large	Rural	Medium	8
Small	Large	Rural	High	8
Maine				
Small	Small	Rural	None	14
Small	Large	Mid-Size Central City	None	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	12
Small	Large	Small Town	None	31
Small	Large	Rural	None	49

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Maryland				
Small	Small	Urban Fringe of Large Central City	Medium	1
Small	Large	Large/Mid-Size Central City	Low	7
Small	Large	Large/Mid-Size Central City	Medium	6
Small	Large	Large/Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large Central City	Low	22
Small	Large	Urban Fringe of Large Central City	Medium	22
Small	Large	Urban Fringe of Large Central City	High	23
Small	Large	Small Town/Rural	Low	7
Small	Large	Small Town/Rural	Medium	6
Small	Large	Small Town/Rural	High	6
Massachusetts				
Small	Large	Large/Mid-Size Central City	Low	10
Small	Large	Large/Mid-Size Central City	Medium	11
Small	Large	Large/Mid-Size Central City	High	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	42
Small	Large	Large/Small Town	None	21
Small	Large	Rural	None	12
Minnesota				
Small	Small	Rural	None	2
Small	Large	Large/Mid-Size Central City	Low	5
Small	Large	Large/Mid-Size Central City	Medium	5
Small	Large	Large/Mid-Size Central City	High	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	49
Small	Large	Large/Small Town	None	18
Small	Large	Rural	None	26

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Mississippi				
Small	Large	Mid-Size Central City	Low	3
Small	Large	Mid-Size Central City	Medium	4
Small	Large	Mid-Size Central City	High	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	5
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	5
Small	Large	Large/Small Town	Low	14
Small	Large	Large/Small Town	Medium	15
Small	Large	Large/Small Town	High	15
Small	Large	Rural	Low	12
Small	Large	Rural	Medium	11
Small	Large	Rural	High	12
Missouri				
Small	Small	Large/Small Town	None	2
Small	Small	Rural	None	6
Small	Large	Large/Mid-Size Central City	Low	8
Small	Large	Large/Mid-Size Central City	Medium	8
Small	Large	Large/Mid-Size Central City	High	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	12
Small	Large	Large/Small Town	None	20
Small	Large	Rural	None	30

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Montana				
Small	Small	Mid-Size Central City/Urban Fringe	None	1
Small	Small	Small Town	None	5
Small	Small	Rural	None	36
Small	Large	Mid-Size Central City/Urban Fringe	None	10
Small	Large	Large Town	None	6
Small	Large	Small Town	None	27
Small	Large	Rural	None	31
North Carolina				
Small	Large	Large/Mid-Size Central City	Low	12
Small	Large	Large/Mid-Size Central City	Medium	11
Small	Large	Large/Mid-Size Central City	High	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	8
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	9
Small	Large	Large/Small Town	Low	7
Small	Large	Large/Small Town	Medium	7
Small	Large	Large/Small Town	High	7
Small	Large	Rural	Low	9
Small	Large	Rural	Medium	8
Small	Large	Rural	High	9

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Nevada				
Large	Large	Large Central City	Low	5
Large	Large	Large Central City	Medium	5
Large	Large	Large Central City	High	6
Large	Large	Mid-Size Central City	Medium	1
Large	Large	Mid-Size Central City	High	1
Large	Large	Urban Fringe of Large/Mid-Size Central City	Low	3
Large	Large	Urban Fringe of Large/Mid-Size Central City	Medium	2
Large	Large	Urban Fringe of Large/Mid-Size Central City	High	3
Large	Large	Large/Small Town/Rural	Medium	1
Large	Large	Large/Small Town/Rural	High	1
Small	Small	Large/Small Town/Rural	Low	2
Small	Small	Large/Small Town/Rural	Medium	1
Small	Small	Large/Small Town/Rural	High	1
Small	Large	Mid-Size Central City	Low	3
Small	Large	Mid-Size Central City	Medium	3
Small	Large	Mid-Size Central City	High	2
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	2
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	2
Small	Large	Large/Small Town/Rural	Low	6
Small	Large	Large/Small Town/Rural	Medium	4
Small	Large	Large/Small Town/Rural	High	5

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
New Mexico				
Large	Large	Large Central City	Low	6
Large	Large	Large Central City	Medium	6
Large	Large	Large Central City	High	7
Large	Large	Rural	Medium	1
Small	Small	Rural	Low	1
Small	Small	Rural	Medium	1
Small	Small	Rural	High	1
Small	Large	Mid-Size Central City	Low	3
Small	Large	Mid-Size Central City	Medium	2
Small	Large	Mid-Size Central City	High	3
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	3
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	4
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	3
Small	Large	Large Town	Low	5
Small	Large	Large Town	Medium	4
Small	Large	Large Town	High	5
Small	Large	Small Town	Low	8
Small	Large	Small Town	Medium	8
Small	Large	Small Town	High	7
Small	Large	Rural	Low	6
Small	Large	Rural	Medium	5
Small	Large	Rural	High	6

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
New York				
Large	Large	Large/Mid-Size Central City	Low Black/Low Hispanic	6
Large	Large	Large/Mid-Size Central City	Low Black/High Hispanic	10
Large	Large	Large/Mid-Size Central City	High Black/Low Hispanic	12
Large	Large	Large/Mid-Size Central City	High Black/High Hispanic	7
Small	Large	Large/Mid-Size Central City	Low Black/Low Hispanic	6
Small	Large	Large/Mid-Size Central City	High Black/Low Hispanic	1
Small	Large	Large/Mid-Size Central City	High Black/High Hispanic	4
Small	Large	Urban Fringe of Large Central City	Low	9
Small	Large	Urban Fringe of Large Central City	Medium	9
Small	Large	Urban Fringe of Large Central City	High	10
Small	Large	Urban Fringe of Mid-Size Central City	None	10
Small	Large	Large/Small Town/Rural	None	22
Oklahoma				
Small	Small	Urban Fringe of Large/Mid-Size Central City	None	1
Small	Small	Large/Small Town	None	2
Small	Small	Rural	None	9
Small	Large	Large Central City	Low	6
Small	Large	Large Central City	Medium	7
Small	Large	Large Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	30
Small	Large	Large/Small Town	None	25
Small	Large	Rural	None	29

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Oregon				
Small	Small	Urban Fringe of Large/Mid-Size Central City	None	1
Small	Small	Large/Small Town	High	1
Small	Small	Rural	None	6
Small	Large	Large Central City	Low	5
Small	Large	Large Central City	Medium	4
Small	Large	Large Central City	High	4
Small	Large	Mid-Size Central City	None	16
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	38
Small	Large	Large/Small Town	Low	9
Small	Large	Large/Small Town	Medium	8
Small	Large	Large/Small Town	High	8
Small	Large	Rural	None	13
South Carolina				
Small	Small	Rural	Low	1
Small	Large	Mid-Size Central City	Low	9
Small	Large	Mid-Size Central City	Medium	9
Small	Large	Mid-Size Central City	High	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	11
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	11
Small	Large	Small Town	Low	8
Small	Large	Small Town	Medium	6
Small	Large	Small Town	High	8
Small	Large	Rural	Low	7
Small	Large	Rural	Medium	9
Small	Large	Rural	High	7

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Tennessee				
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	None	2
Small	Large	Large Central City	Low	8
Small	Large	Large Central City	Medium	7
Small	Large	Large Central City	High	8
Small	Large	Mid-Size Central City	Low	7
Small	Large	Mid-Size Central City	Medium	5
Small	Large	Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	23
Small	Large	Large/Small Town	Low	7
Small	Large	Large/Small Town	Medium	7
Small	Large	Large/Small Town	High	7
Small	Large	Rural	None	24

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Texas				
Small	Small	Rural	Low	1
Small	Small	Rural	Medium	1
Small	Small	Rural	High	1
Small	Large	Large Central City	Low	11
Small	Large	Large Central City	Medium	12
Small	Large	Large Central City	High	11
Small	Large	Mid-Size Central City	Low	6
Small	Large	Mid-Size Central City	Medium	6
Small	Large	Mid-Size Central City	High	6
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	10
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	9
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	10
Small	Large	Large/Small Town	Low	4
Small	Large	Large/Small Town	Medium	4
Small	Large	Large/Small Town	High	4
Small	Large	Rural	Low	4
Small	Large	Rural	Medium	5
Small	Large	Rural	High	4
Utah				
Small	Small	Large/Small Town/Rural	None	1
Small	Large	Mid-Size Central City	Low	8
Small	Large	Mid-Size Central City	Medium	10
Small	Large	Mid-Size Central City	High	11
Small	Large	Urban Fringe of Mid-Size Central City	None	40
Small	Large	Large/Small Town/Rural	None	27

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Virginia				
Small	Large	Large Central City	Low	4
Small	Large	Large Central City	Medium	4
Small	Large	Large Central City	High	3
Small	Large	Mid-Size Central City	Low	7
Small	Large	Mid-Size Central City	Medium	7
Small	Large	Mid-Size Central City	High	7
Small	Large	Urban Fringe of Large/Mid-Size Central City	Low	14
Small	Large	Urban Fringe of Large/Mid-Size Central City	Medium	12
Small	Large	Urban Fringe of Large/Mid-Size Central City	High	13
Small	Large	Large/Small Town/Rural	Low	11
Small	Large	Large/Small Town/Rural	Medium	11
Small	Large	Large/Small Town/Rural	High	11
Washington				
Small	Small	Large/Small Town	Low	1
Small	Small	Rural	Low	2
Small	Large	Large/Mid-Size Central City	Low	12
Small	Large	Large/Mid-Size Central City	Medium	12
Small	Large	Large/Mid-Size Central City	High	12
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	41
Small	Large	Large/Small Town	Low	4
Small	Large	Large/Small Town	Medium	4
Small	Large	Large/Small Town	High	4
Small	Large	Rural	Low	6
Small	Large	Rural	Medium	5
Small	Large	Rural	High	6

Table B-16 (continued)
Distribution of Selected Public Schools by Sampling Strata, Eighth Grade

Small or Large District	Small or Large School	Urbanization	Percent of Minority	Originally Selected Schools
Wisconsin				
Small	Small	Large/Small Town	None	1
Small	Small	Rural	None	1
Small	Large	Large/Mid-Size Central City	Low	11
Small	Large	Large/Mid-Size Central City	Medium	11
Small	Large	Large/Mid-Size Central City	High	13
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	27
Small	Large	Large/Small Town	None	21
Small	Large	Rural	None	27
West Virginia				
Small	Small	Large/Small Town	None	1
Small	Small	Rural	None	2
Small	Large	Mid-Size Central City	None	14
Small	Large	Urban Fringe of Large/Mid-Size Central City	None	17
Small	Large	Large/Small Town	None	28
Small	Large	Rural	None	48
Wyoming				
Small	Small	Large/Small Town	None	4
Small	Small	Rural	None	12
Small	Large	Mid-Size Central City	Low	3
Small	Large	Mid-Size Central City	Medium	2
Small	Large	Mid-Size Central City	High	2
Small	Large	Large/Small Town	None	24
Small	Large	Rural	None	32

Table B-17
Distribution of Selected Nonpublic Schools by Sampling Strata, Fourth Grade

Small or Large School	Metro Status	School Type	Originally Selected Schools
Arkansas			
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	4
Colorado			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	4
Large	In Metro Area	Catholic	4
Large	In Metro Area	Other Nonpublic	5
Connecticut			
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	4
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	9
Large	In Metro Area	Other Nonpublic	3
Florida			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	5
Large	In Metro Area	Catholic	5
Large	In Metro Area	Other Nonpublic	9
Georgia			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	5
Hawaii			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	6
Large	In Metro Area	Other Nonpublic	8

Table B-17 (continued)
Distribution of Selected Nonpublic Schools by Sampling Strata, Fourth Grade

Small or Large School	Metro Status	School Type	Originally Selected Schools
Iowa			
Small	Not In Metro Area	Catholic	2
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Other Nonpublic	1
Large	Not In Metro Area	Catholic	4
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	6
Large	In Metro Area	Other Nonpublic	1
Illinois			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	5
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	12
Large	In Metro Area	Other Nonpublic	4
Louisiana			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	11
Large	In Metro Area	Other Nonpublic	7
Massachusetts			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	4
Large	In Metro Area	Catholic	10
Large	In Metro Area	Other Nonpublic	3
Maryland			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	5
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	8
Large	In Metro Area	Other Nonpublic	9
Maine			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	6
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	2

Table B-17 (continued)*Distribution of Selected Nonpublic Schools by Sampling Strata, Fourth Grade*

Small or Large School	Metro Status	School Type	Originally Selected Schools
Michigan			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	5
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	6
Large	In Metro Area	Other Nonpublic	6
Minnesota			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	4
Small	In Metro Area	Catholic	2
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	2
Large	In Metro Area	Catholic	7
Large	In Metro Area	Other Nonpublic	3
Missouri			
Small	Not In Metro Area	Catholic	2
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	4
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	10
Large	In Metro Area	Other Nonpublic	4
Mississippi			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	1
Large	Not In Metro Area	Other Nonpublic	6
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	3
Montana			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	5
Small	In Metro Area	Other Nonpublic	1
Large	Not In Metro Area	Catholic	3
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Other Nonpublic	1
North Carolina			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	5

Table B-17 (continued)
Distribution of Selected Nonpublic Schools by Sampling Strata, Fourth Grade

Small or Large School	Metro Status	School Type	Originally Selected Schools
Nebraska			
Small	Not In Metro Area	Catholic	4
Small	Not In Metro Area	Other Nonpublic	4
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Catholic	2
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	9
Large	In Metro Area	Other Nonpublic	3
New Mexico			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	3
Nevada			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	4
New York			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	12
Large	In Metro Area	Other Nonpublic	9
Rhode Island			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	3
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	11
Large	In Metro Area	Other Nonpublic	4
South Carolina			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	6
Utah			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	4

Table B-17 (continued)*Distribution of Selected Nonpublic Schools by Sampling Strata, Fourth Grade*

Small or Large School	Metro Status	School Type	Originally Selected Schools
Washington			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	3
Large	In Metro Area	Other Nonpublic	5
Wisconsin			
Small	Not In Metro Area	Catholic	2
Small	Not In Metro Area	Other Nonpublic	5
Small	In Metro Area	Catholic	3
Small	In Metro Area	Other Nonpublic	6
Large	Not In Metro Area	Catholic	3
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	9
Large	In Metro Area	Other Nonpublic	5
West Virginia			
Small	Not In Metro Area	Other Nonpublic	5
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	3
Large	In Metro Area	Other Nonpublic	1
Wyoming			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	4
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	1

Table B-18
Distribution of Selected Nonpublic Schools by Sampling Strata, Eighth Grade

Small or Large School	Metro Status	School Type	Originally Selected Schools
Arkansas			
Small	Not In Metro Area	Other Nonpublic	4
Small	In Metro Area	Other Nonpublic	4
Large	Not In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	3
Large	In Metro Area	Other Nonpublic	4
Arizona			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	6
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	3
Large	In Metro Area	Other Nonpublic	7
California			
Small	In Metro Area	Other Nonpublic	9
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	9
Large	In Metro Area	Other Nonpublic	14
Colorado			
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	7
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	4
Large	In Metro Area	Other Nonpublic	7
Connecticut			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	2
Small	In Metro Area	Other Nonpublic	8
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	18
Large	In Metro Area	Other Nonpublic	7
Florida			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	9
Large	In Metro Area	Catholic	6
Large	In Metro Area	Other Nonpublic	13

Table B-18 (continued)*Distribution of Selected Nonpublic Schools by Sampling Strata, Eighth Grade*

Small or Large School	Metro Status	School Type	Originally Selected Schools
Georgia			
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Other Nonpublic	5
Large	Not In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	7
Illinois			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	2
Small	In Metro Area	Other Nonpublic	8
Large	Not In Metro Area	Catholic	2
Large	In Metro Area	Catholic	19
Large	In Metro Area	Other Nonpublic	9
Louisiana			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	5
Large	Not In Metro Area	Catholic	2
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	20
Large	In Metro Area	Other Nonpublic	9
Massachusetts			
Small	In Metro Area	Catholic	2
Small	In Metro Area	Other Nonpublic	11
Large	In Metro Area	Catholic	18
Large	In Metro Area	Other Nonpublic	8
Maryland			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	8
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	14
Large	In Metro Area	Other Nonpublic	12
Maine			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	10
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	4
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	5
Large	In Metro Area	Catholic	3
Large	In Metro Area	Other Nonpublic	4

Table B-18 (continued)
Distribution of Selected Nonpublic Schools by Sampling Strata, Eighth Grade

Small or Large School	Metro Status	School Type	Originally Selected Schools
Missouri			
Small	Not In Metro Area	Catholic	2
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Catholic	2
Small	In Metro Area	Other Nonpublic	6
Large	Not In Metro Area	Catholic	2
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	16
Large	In Metro Area	Other Nonpublic	6
Montana			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	11
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	5
Large	Not In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	1
North Carolina			
Small	Not In Metro Area	Other Nonpublic	4
Small	In Metro Area	Other Nonpublic	6
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	1
Large	In Metro Area	Other Nonpublic	7
Nebraska			
Small	Not In Metro Area	Catholic	3
Small	Not In Metro Area	Other Nonpublic	7
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	4
Large	Not In Metro Area	Catholic	4
Large	Not In Metro Area	Other Nonpublic	2
Large	In Metro Area	Catholic	12
Large	In Metro Area	Other Nonpublic	3
New Mexico			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	3
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	6
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	3
Large	In Metro Area	Catholic	4
Large	In Metro Area	Other Nonpublic	4

Table B-18 (continued)*Distribution of Selected Nonpublic Schools by Sampling Strata, Eighth Grade*

Small or Large School	Metro Status	School Type	Originally Selected Schools
Nevada			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	4
Large	In Metro Area	Other Nonpublic	5
New York			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Catholic	1
Small	In Metro Area	Other Nonpublic	7
Large	Not In Metro Area	Catholic	1
Large	In Metro Area	Catholic	19
Large	In Metro Area	Other Nonpublic	15
Rhode Island			
Small	Not In Metro Area	Other Nonpublic	1
Small	In Metro Area	Catholic	5
Small	In Metro Area	Other Nonpublic	7
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	23
Large	In Metro Area	Other Nonpublic	8
Washington			
Small	Not In Metro Area	Other Nonpublic	2
Small	In Metro Area	Other Nonpublic	6
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	6
Large	In Metro Area	Other Nonpublic	6
West Virginia			
Small	Not In Metro Area	Catholic	1
Small	Not In Metro Area	Other Nonpublic	8
Small	In Metro Area	Catholic	2
Small	In Metro Area	Other Nonpublic	2
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	3
Large	In Metro Area	Other Nonpublic	2
Wyoming			
Small	Not In Metro Area	Other Nonpublic	8
Small	In Metro Area	Other Nonpublic	3
Large	Not In Metro Area	Catholic	1
Large	Not In Metro Area	Other Nonpublic	1
Large	In Metro Area	Catholic	2
Large	In Metro Area	Other Nonpublic	1

Table B-19
Weighted School Participation Rates and Sample Counts
Grade 4 Reading for Public Schools

Jurisdiction	Weighted Participation Rate After Substitution (%)	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)
Alabama	91	108	98
Arizona	98	111	108
Arkansas	97	107	102
California	80	107	84
Colorado	95	110	104
Connecticut	98	109	107
Delaware	100	65	65
District of Columbia	100	114	104
DoDEA/DoDDS	100	41	39
DoDEA/DDESS	100	104	103
Florida	99	105	103
Georgia	99	105	104
Hawaii	100	108	105
Illinois	84	107	89
Iowa	84	109	92
Kansas	70	112	79
Kentucky	92	108	99
Louisiana	100	110	109
Maine	96	119	106
Maryland	88	105	92
Massachusetts	88	111	95
Michigan	90	107	95
Minnesota	86	107	92
Mississippi	94	105	96
Missouri	99	110	105
Montana	78	115	83
Nevada	100	113	113
New Hampshire	70	109	74
New Mexico	99	110	109
New York	84	106	89
North Carolina	99	106	103
Oklahoma	100	110	109
Oregon	94	109	102

(continued)

Table B-19 (continued)
Weighted School Participation Rates and Sample Counts
Grade 4 Reading for Public Schools

Jurisdiction	Weighted Participation Rate After Substitution (%)	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)
Rhode Island	100	107	106
South Carolina	97	105	98
Tennessee	97	108	103
Texas	97	108	102
Utah	100	107	106
Virgin Islands	100	24	24
Virginia	100	106	106
Washington	89	107	93
West Virginia	100	111	110
Wisconsin	82	108	88
Wyoming	100	121	117

Table B-20
Weighted School Participation Rates and Sample Counts
Grade 4 Reading for Nonpublic Schools

Jurisdiction	Weighted Participation Rate After Substitution (%)	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)
Arkansas	76	13	7
Colorado	86	16	11
Connecticut	82	18	12
Florida	78	20	12
Georgia	80	13	9
Hawaii	85	23	18
Illinois	70	25	14
Iowa	92	18	16
Louisiana	81	24	17
Maine	80	16	10
Maryland	66	24	14
Massachusetts	84	19	13
Michigan	73	21	13
Minnesota	81	22	17
Mississippi	74	14	10
Missouri	80	24	17
Montana	88	14	5
Nebraska	99	26	22
Nevada	89	10	9
New Mexico	91	20	16
New York	67	27	17
North Carolina	90	13	10
Rhode Island	96	23	18
South Carolina	96	15	11
Utah	75	10	8
Virgin Islands	96	27	24
Washington	77	15	10
West Virginia	86	13	7
Wisconsin	75	36	24
Wyoming	96	11	7

Table B-21
Weighted School Participation Rates and Sample Counts
Grade 8 Reading and Writing for Public Schools

Jurisdiction	Reading			Writing		
	Weighted Percentage School Participation After Substitution	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)	Weighted Percentage School Participation After Substitution	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)
Alabama	91	113	102	90	113	101
Arizona	97	110	105	98	111	104
Arkansas	97	113	105	97	114	105
California	84	108	90	83	107	88
Colorado	97	110	106	97	110	106
Connecticut	99	107	104	99	107	104
Delaware	100	32	31	100	31	30
District of Columbia	100	37	30	100	38	31
DoDEA/DoDDS	100	11	11	100	12	12
DoDEA/DDESS	100	59	57	100	57	55
Florida	100	104	103	100	105	104
Georgia	100	106	104	100	106	104
Hawaii	100	55	51	100	53	49
Illinois	81	111	89	80	110	88
Kansas	71	116	81	—	—	—
Kentucky	87	108	91	87	109	89
Louisiana	100	112	110	100	113	112
Maine	97	104	97	97	104	98
Maryland	85	107	88	86	108	89
Massachusetts	89	105	91	89	106	92
Minnesota	74	109	81	74	108	80
Mississippi	92	103	92	92	104	92
Missouri	97	117	109	97	115	108
Montana	78	92	59	78	93	62
Nevada	99	58	55	99	58	55
New Mexico	96	93	88	96	94	89
New York	77	109	81	77	108	81
North Carolina	100	107	104	100	107	104
Oklahoma	100	105	103	100	104	101
Oregon	88	109	96	88	109	96
Rhode Island	100	51	50	100	51	50

(continued)

Table B-21 (continued)
Weighted School Participation Rates and Sample Counts
Grade 8 Reading and Writing for Public Schools

Jurisdiction	Reading			Writing		
	Weighted Percentage School Participation After Substitution	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)	Weighted Percentage School Participation After Substitution	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)
South Carolina	95	105	99	94	105	99
Tennessee	89	109	95	89	109	95
Texas	96	109	100	96	108	100
Utah	100	96	94	100	96	94
Virgin Islands	100	6	6	100	6	6
Virginia	100	104	103	100	104	103
Washington	86	108	93	87	107	92
West Virginia	100	107	106	100	107	106
Wisconsin	73	111	81	73	111	80
Wyoming	95	69	67	100	70	65

Table B-22
Weighted School Participation Rates and Sample Counts
Grade 8 Reading and Writing for Nonpublic Schools

Jurisdiction	Reading			Writing		
	Weighted Percentage School Participation After Substitution	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)	Weighted Percentage School Participation After Substitution	Number of Schools in Original Sample	Total Number of Schools That Participated (Including Substitutes)
Arizona	78	13	9	76	12	7
Arkansas	86	12	8	83	11	9
California	79	20	13	84	20	9
Colorado	100	15	10	78	14	8
Connecticut	84	27	19	70	23	13
Florida	74	19	11	85	19	11
Georgia	100	13	11	88	13	9
Illinois	61	28	14	59	28	14
Louisiana	78	31	22	90	33	27
Maine	78	16	8	58	17	5
Maryland	82	23	14	79	25	16
Massachusetts	65	22	10	70	25	15
Missouri	90	23	16	69	26	16
Montana	82	15	9	100	15	13
Nebraska	89	25	20	92	25	21
Nevada	88	10	8	95	9	7
New Mexico	83	18	13	80	16	11
New York	73	31	18	80	29	19
North Carolina	84	13	9	78	13	8
Rhode Island	85	30	21	82	30	20
Virgin Islands	100	15	14	82	14	10
Washington	100	15	11	92	13	8
West Virginia	87	10	7	85	11	7
Wyoming	95	9	6	77	9	6

Table B-23

Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples
Grade 4 Reading for Public Schools*

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Non- accommodated Students† Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Alabama	96	2,819	2,506	2,506	15	9
Arizona	94	2,901	2,432	2,432	22	10
Arkansas	95	2,956	2,580	2,580	11	5
California	93	2,112	1,722	1,722	30	15
Colorado	94	2,899	2,528	2,528	15	7
Connecticut	94	2,940	2,484	2,484	17	12
Delaware	94	2,684	2,309	2,309	18	8
District of Columbia	93	2,815	2,353	2,353	15	10
DoDEA/DDESS	96	3,122	2,647	2,647	10	5
DoDEA/DDESS	94	3,175	2,609	2,609	8	5
Florida	94	2,953	2,463	2,463	17	9
Georgia	96	3,051	2,647	2,647	10	7
Hawaii	95	2,943	2,600	2,600	15	5
Illinois	95	2,459	2,161	2,161	13	9
Iowa	96	2,456	2,232	2,232	15	8
Kansas	93	2,116	1,845	1,845	13	6
Kentucky	96	2,787	2,442	2,442	13	10
Louisiana	95	3,029	2,587	2,587	16	13
Maine	93	2,687	2,355	2,355	14	8
Maryland	95	2,600	2,241	2,241	13	10
Massachusetts	95	2,604	2,306	2,306	20	9
Michigan	93	2,723	2,365	2,365	10	7
Minnesota	94	2,535	2,271	2,271	15	4
Mississippi	95	2,842	2,552	2,552	7	4
Missouri	95	2,858	2,482	2,482	13	7
Montana	95	2,024	1,847	1,847	9	4
Nevada	94	3,159	2,597	2,597	20	12
New Hampshire	93	2,056	1,805	1,805	15	5
New Mexico	94	2,726	2,284	2,284	28	11
New York	95	2,474	2,221	2,221	13	8
North Carolina	94	2,960	2,514	2,514	16	11
Oklahoma	95	3,035	2,576	2,576	16	10

* The reporting samples for reading include all non SD/LEP students plus SD/LEP students from sample type 2.

† No accommodated students were assessed.

(continued)

Table B-23 (continued)

Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples
Grade 4 Reading for Public Schools*

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Non- accommodated Students† Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Oregon	95	2,783	2,396	2,396	23	8
Rhode Island	94	2,919	2,533	2,533	21	8
South Carolina	95	2,799	2,411	2,411	18	12
Tennessee	94	2,972	2,627	2,627	14	5
Texas	95	2,694	2,241	2,241	28	14
Utah	95	3,034	2,678	2,678	15	6
Virgin Islands	96	1,645	1,469	1,469	10	8
Virginia	95	2,999	2,602	2,602	16	9
Washington	94	2,635	2,378	2,378	17	6
West Virginia	94	2,927	2,518	2,518	13	10
Wisconsin	95	2,343	2,071	2,071	14	9
Wyoming	95	2,948	2,642	2,642	14	4

* The reporting samples for reading include all non SD/LEP students plus SD/LEP students from sample type 2.

† No accommodated students were assessed.

Table B-24

Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples
Grade 4 Reading for Nonpublic Schools*

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Non- accommodated Students† Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Arkansas	97	168	163	163	0	0
Colorado	95	233	221	221	2	0
Connecticut	95	277	261	261	7	1
Florida	94	291	271	271	5	1
Georgia	97	298	266	266	2	1
Hawaii	97	395	379	379	1	0
Illinois	96	368	353	353	0	0
Iowa	98	336	329	329	3	0
Louisiana	95	439	413	413	5	2
Maine	94	135	127	127	3	0
Maryland	98	306	297	297	4	1
Massachusetts	94	308	282	282	3	3
Michigan	95	280	264	264	1	1
Minnesota	95	356	335	335	3	1
Mississippi	98	230	224	224	2	0
Missouri	96	333	317	317	2	1
Montana	94	108	99	99	7	2
Nebraska	96	498	476	476	2	1
Nevada	95	159	150	150	1	1
New Mexico	95	246	221	221	13	6
New York	96	404	377	377	2	2
North Carolina	95	246	227	227	5	0
Rhode Island	95	405	379	379	3	0
South Carolina	94	245	227	227	2	1
Utah	94	114	107	107	0	0
Virgin Islands	96	444	426	426	0	0
Washington	95	186	175	175	2	0
West Virginia	100	125	124	124	0	0
Wisconsin	96	443	424	424	0	0
Wyoming	91	105	95	95	0	0

* The reporting samples for reading include all non SD/LEP students plus SD/LEP students from sample type 2.

† No accommodated students were assessed.

Table B-25

Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples
Grade 8 Reading for Public Schools*

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Non- accommodated Students† Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Alabama	93	2,820	2,428	2,428	14	7
Arizona	91	2,788	2,325	2,325	15	6
Arkansas	92	2,904	2,412	2,412	12	7
California	91	2,331	1,944	1,944	23	8
Colorado	91	2,971	2,542	2,542	15	5
Connecticut	91	2,928	2,489	2,489	15	8
Delaware	91	2,396	1,987	1,987	17	8
District of Columbia	86	1,968	1,528	1,528	15	9
DoDEA/DoDDS	95	732	610	610	13	7
DoDEA/DDESS	94	2,578	2,138	2,138	7	3
Florida	89	2,928	2,392	2,392	16	5
Georgia	90	3,007	2,499	2,499	12	6
Hawaii	91	2,877	2,461	2,461	14	6
Illinois	93	2,316	2,051	2,051	12	6
Kansas	92	2,164	1,857	1,857	11	5
Kentucky	93	2,649	2,282	2,282	11	5
Louisiana	91	3,001	2,479	2,479	13	9
Maine	92	2,712	2,363	2,363	13	6
Maryland	89	2,539	2,087	2,087	12	7
Massachusetts	91	2,495	2,141	2,141	16	6
Minnesota	93	2,218	1,926	1,926	12	4
Mississippi	92	2,676	2,274	2,274	11	7
Missouri	92	2,935	2,526	2,526	13	6
Montana	92	2,142	1,877	1,877	10	3
Nevada	91	3,020	2,449	2,449	16	8
New Mexico	90	2,700	2,183	2,183	20	7
New York	88	2,244	1,842	1,842	14	9
North Carolina	92	2,954	2,487	2,487	14	9
Oklahoma	91	2,682	2,182	2,182	14	9
Oregon	89	2,624	2,169	2,169	14	4
Rhode Island	88	2,838	2,393	2,393	17	5

* The reporting samples for reading include all non SD/LEP students plus SD/LEP students from sample type 2.

† No accommodated students were assessed.

(continued)

Table B-25 (continued)

Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples
Grade 8 Reading for Public Schools*

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Non- accommodated Students† Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
South Carolina	93	2,838	2,429	2,429	12	6
Tennessee	90	2,558	2,159	2,159	14	4
Texas	93	2,730	2,318	2,318	18	7
Utah	90	3,004	2,510	2,510	12	5
Virgin Islands	88	767	643	643	5	5
Virginia	91	2,958	2,493	2,493	13	7
Washington	91	2,573	2,205	2,205	12	4
West Virginia	91	2,916	2,442	2,442	12	8
Wisconsin	92	2,209	1,918	1,918	14	8
Wyoming	91	2,891	2,509	2,509	11	2

* The reporting samples for reading include all non SD/LEP students plus SD/LEP students from sample type 2.

† No accommodated students were assessed.

Table B-26

Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples
Grade 8 Reading for Nonpublic Schools*

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Non- accommodated Students† Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Arizona	90	204	174	174	17	2
Arkansas	97	140	132	132	4	4
California	97	305	295	295	1	0
Colorado	97	159	154	154	0	0
Connecticut	95	367	343	343	1	0
Florida	93	204	189	189	1	0
Georgia	95	194	185	185	0	0
Illinois	98	298	288	288	3	1
Louisiana	95	480	453	453	4	0
Maine	96	82	78	78	0	0
Maryland	96	344	326	326	1	0
Massachusetts	96	191	183	183	0	0
Missouri	96	300	288	288	0	0
Montana	98	151	147	147	0	0
Nebraska	95	384	362	362	2	2
Nevada	96	138	129	129	4	2
New Mexico	95	184	166	166	26	2
New York	95	368	345	345	4	2
North Carolina	96	259	238	238	8	5
Rhode Island	94	423	401	401	2	1
Virgin Islands	96	238	228	228	0	0
Washington	94	247	229	229	7	3
West Virginia	93	105	96	96	0	0
Wyoming	99	52	51	51	0	0

* The reporting samples for reading include all non SD/LEP students plus SD/LEP students from sample type 2.

† No accommodated students were assessed.

Table B-27
*Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples**
Grade 8 Writing for Public Schools

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Nonaccommodated Students Assessed	Number of Accommodated Students Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Alabama	92	2,938	2,427	22	2,449	12	6
Arizona	89	3,111	2,437	62	2,499	17	5
Arkansas	92	3,041	2,428	34	2,462	13	6
California	92	2,618	2,122	35	2,157	23	6
Colorado	91	3,197	2,619	78	2,697	13	4
Connecticut	90	3,186	2,514	78	2,592	15	7
Delaware	91	2,522	2,048	71	2,119	14	3
District of Columbia	85	2,115	1,571	21	1,592	13	6
DoDEA/DoDDS	95	765	628	22	650	10	3
DoDEA/DDESS	93	2,650	2,144	38	2,182	7	1
Florida	89	3,222	2,518	56	2,574	16	5
Georgia	90	3,208	2,550	55	2,605	11	5
Hawaii	92	3,092	2,584	63	2,647	15	4
Illinois	92	2,457	2,096	49	2,145	12	4
Kentucky	93	2,713	2,235	106	2,341	10	2
Louisiana	91	3,222	2,530	123	2,653	13	5
Maine	91	2,970	2,431	77	2,508	14	5
Maryland	89	2,726	2,119	144	2,263	13	2
Massachusetts	92	2,806	2,273	126	2,399	17	5
Minnesota	90	2,344	1,923	57	1,980	14	3
Mississippi	92	2,839	2,378	23	2,401	9	5
Missouri	92	3,080	2,510	111	2,621	13	3
Montana	93	2,326	1,981	43	2,024	11	2

* The reporting samples for writing included both accommodated and nonaccommodated students.

(continued)

Table B-27 (continued)
*Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples**
Grade 8 Writing for Public Schools

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Nonaccommodated Students Assessed	Number of Accommodated Students Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Nevada	89	3,258	2,482	71	2,553	16	6
New Mexico	89	3,109	2,339	87	2,426	23	6
New York	87	2,443	1,865	116	1,981	15	5
North Carolina	93	3,147	2,505	164	2,669	14	4
Oklahoma	92	2,868	2,233	25	2,258	13	9
Oregon	89	2,851	2,257	66	2,323	15	3
Rhode Island	89	3,071	2,441	75	2,516	17	4
South Carolina	91	2,993	2,425	44	2,469	12	5
Tennessee	91	2,739	2,253	22	2,275	13	4
Texas	93	3,068	2,467	63	2,530	19	6
Utah	90	3,152	2,564	24	2,588	10	4
Virgin Islands	87	777	614	0	614	8	8
Virginia	91	3,156	2,523	82	2,605	14	4
Washington	89	2,753	2,223	63	2,286	13	4
West Virginia	91	3,168	2,525	86	2,611	14	5
Wisconsin	92	2,332	1,952	54	2,006	11	4
Wyoming	92	3,142	2,668	58	2,726	9	2

* The reporting samples for writing included both accommodated and nonaccommodated students.

Table B-28
*Weighted Student Participation Rates, Exclusion Rates, and Sample Counts for the Reporting Samples**
Grade 8 Writing for Nonpublic Schools

Jurisdiction	Weighted Percentage Student Participation After Makeups	Number of Students Sampled	Number of Nonaccommodated Students Assessed	Number of Accommodated Students Assessed	Total Number of Students Assessed	Weighted Percentage of Students Identified as SD or LEP	Weighted Percentage of Students Excluded
Arizona	96	149	129	1	130	14	8
Arkansas	96	146	140	0	140	1	1
California	98	232	224	0	224	0	0
Colorado	93	147	137	0	137	14	0
Connecticut	93	261	235	5	240	5	1
Florida	94	235	210	3	213	5	0
Georgia	94	156	144	0	144	1	1
Illinois	96	328	313	1	314	1	0
Louisiana	97	603	570	10	580	4	0
Maine	96	100	95	0	95	0	0
Maryland	96	367	347	3	350	1	0
Massachusetts	92	288	255	8	263	5	0
Missouri	96	314	300	3	303	2	0
Montana	96	217	203	3	206	3	1
Nebraska	97	370	346	8	354	2	0
Nevada	92	122	108	0	108	2	0
New Mexico	96	223	198	6	204	16	1
New York	96	403	378	2	380	9	2
North Carolina	95	271	247	1	248	2	1
Rhode Island	96	453	434	0	434	1	0
Virgin Islands	98	198	193	0	193	0	0
Washington	94	168	153	2	155	4	0
West Virginia	98	122	117	0	117	2	0
Wyoming	95	64	59	2	61	9	0

* The reporting samples for writing included both accommodated and nonaccommodated students.

Table B-29
Results of Logistic Regression Analysis of School Nonresponse – Grade 4 Reading

Jurisdiction	School Participation Rate (%)	Percent of Population Covered by Model	Model with All Variables			Test: Y_{ij}'s = 0	
			Degrees of Freedom	Significance	Significant Variables	Degrees of Freedom	Significance
California	83.15	85.83	8	p=0.646	none	4	p=0.684
Illinois	80.28	100.00	9	p=0.003	percent black, p=0.006	4	p=0.067
Kentucky	87.14	73.23	9	p=0.677	none	4	p=0.256
Massachusetts	89.28	77.42	10	p=0.218	none	4	p=0.839
Maryland	86.42	81.62	8	p=0.494	none	4	p=0.468
Minnesota	73.51	100.00	7	p=0.018	estimated grade enrollment, p=0.001	4	p=0.010
Montana	77.60	82.51	6	p=0.045	None	4	p=0.146
New York	77.27	100.00	8	p=0.099	None	4	p=0.588
Oregon	87.53	86.66	11	p=0.079	estimated grade enrollment, p=0.038	4	p=0.268
Tennessee	89.03	60.07	8	p=0.354	None	4	p=0.140
Washington	86.59	95.16	11	p=0.506	None	4	p=0.852
Wisconsin	72.91	100.00	8	p=0.246	percent of black students, p=0.007	4	p=0.044

Table B-30
Results of Logistic Regression Analysis of School Nonresponse – Grade 8 Reading

Jurisdiction	School Participation Rate (%)	Percent of Population Covered by Model	Model with All Variables			Test: Y_{ij} 's = 0	
			Degrees of Freedom	Significance	Significant Variables	Degrees of Freedom	Significance
California	83.74	79.87	7	p=0.400	none	4	p=0.598
Illinois	81.12	100.00	9	p=0.001	none	4	p=0.126
Kansas	70.60	100.00	9	p=0.748	none	4	p=0.353
Kentucky	87.32	72.63	9	p=0.701	none	4	p=0.510
Massachusetts	89.20	77.59	10	p=0.818	none	4	p=0.691
Maryland	85.45	81.62	8	p=0.413	none	4	p=0.243
Minnesota	73.73	100.00	7	p=0.009	estimated grade enrollment, p=0.001	4	p=0.003
Montana	77.81	79.74	6	p=0.008	nonresponse cell 5, p=0.028	4	p=0.003
New York	77.27	100.00	8	p=0.198	none	4	p=0.282
Oregon	87.53	86.66	11	p=0.000	none	4	p=0.232
Tennessee	89.03	60.09	8	p=0.203	none	4	p=0.083
Washington	86.13	95.22	11	p=0.701	none	4	p=0.897
Wisconsin	73.18	100.00	8	p=0.331	percent black, p=0.013	4	p=0.075

Table B-31
Results of Logistic Regression Analysis of School Nonresponse – Grade 8 Writing

Jurisdiction	School Participation Rate (%)	Percent of Population Covered by Model	Model with All Variables			Test: Y_{ij}'s = 0	
			Degrees of Freedom	Significance	Significant Variables	Degrees of Freedom	Significance
California	83.15	85.83	8	p=0.646	none	4	p=0.684
Illinois	80.28	100.00	9	p=0.003	percent black, p=0.006	4	p=0.067
Kentucky	87.14	73.23	9	p=0.677	None	4	p=0.256
Massachusetts	89.28	77.42	10	p=0.218	None	4	p=0.839
Maryland	86.42	81.62	8	p=0.494	None	4	p=0.468
Minnesota	73.51	100.00	7	p=0.018	estimated grade enrollment, p=0.001	4	p=0.010
Montana	77.60	82.51	6	p=0.045	None	4	p=0.146
New York	77.27	100.00	8	p=0.099	None	4	p=0.588
Oregon	87.53	86.66	11	p=0.079	estimated grade enrollment, p=0.038	4	p=0.268
Tennessee	89.03	60.07	8	p=0.354	None	4	p=0.140
Washington	86.59	95.16	11	p=0.506	None	4	p=0.852
Wisconsin	72.91	100.00	8	p=0.246	percent of black students, p=0.007	4	p=0.044

Appendix C

CONSTRUCTED-RESPONSE ITEM SCORE STATISTICS

This appendix contains information about the constructed-response items included in the scaling of data from the 1998 assessments of reading, writing, and civics. For each subject area and grade, the information in the tables includes the NAEP item numbers for each of the constructed-response items included in scaling, and the block that contains the item. The tables also indicate the codes from the NAEP database that denote the range of responses and the correct responses where appropriate. A portion of the responses to the constructed-response items were scored twice for the purpose of examining rater reliability. For each item, the number of papers with responses that were scored a second time is listed, along with the percent agreement between raters and an index of reliability based on those responses. Cohen's Kappa (Cohen, 1968) is the reliability estimate used for dichotomized items. For items that are not dichotomized (i.e., polytomous items), the intraclass correlation coefficient is used as the index of reliability. See Chapter 9 for more information about score reliability for constructed-response items.

Table C-1
*Score Range, Percent Agreement, and Cohen's Kappa**
for the Dichotomously Scored Constructed-Response Reading Items
Used in 1998 National Main Assessment Scaling, Grade 4[†]

Item	Block	Range of Response Codes	Correct Response Codes	Sample Size	Percent Agreement	Cohen's Kappa
R012102	R4	1-2	2	1,923	98	0.970
R012104	R4	1-2	2	1,900	96	0.910
R012106	R4	1-2	2	1,862	93	0.859
R012108	R4	1-2	2	1,761	97	0.920
R012109	R4	1-2	2	1,752	97	0.922
R012112	R4	1-2	2	1,299	94	0.870
R012201	R6	1-2	2	1,925	96	0.923
R012206	R6	1-2	2	1,697	98	0.956
R012208	R6	1-2	2	1,547	93	0.852
R012210	R6	1-2	2	1,452	95	0.820
R012503	R10	1-2	2	1,921	96	0.922
R012504	R10	1-2	2	1,897	98	0.969
R012506	R10	1-2	2	1,865	97	0.949
R012508	R10	1-2	2	1,794	98	0.956
R012511	R10	1-2	2	1,637	97	0.941
R012601	R5	1-2	2	1,897	90	0.759
R012604	R5	1-2	2	1,855	93	0.834
R012611	R5	1-2	2	1,475	89	0.779
R012702	R7	1-2	2	1,908	97	0.913
R012703	R7	1-2	2	1,878	94	0.877
R012705	R7	1-2	2	1,798	94	0.860
R012706	R7	1-2	2	1,765	87	0.705
R012710	R7	1-2	2	1,227	92	0.839
R015802	R9	1-2	2	1,909	92	0.786
R017001	R3	1-2	2	2,035	96	0.902
R017004	R3	1-2	2	1,988	97	0.927
R017006	R3	1-2	2	1,938	96	0.908

* Cohen's Kappa is a measure of reliability that is appropriate for items that are dichotomized. These items are dichotomized into right and wrong.

[†] Rescored responses from the national and state assessment samples contributed to these statistics.

Table C-2
*Score Range, Percent Agreement, and Cohen's Kappa**
for the Dichotomously Scored Constructed-Response Reading Items
Used in 1998 National Main Assessment Scaling, Grade 8[†]

Item	Block	Range of Response Codes	Correct Response Codes	Sample Size	Percent Agreement	Cohen's Kappa
R012601	R5	1-2	2	1,323	85	0.713
R012604	R5	1-2	2	1,326	91	0.824
R012611	R5	1-2	2	1,258	87	0.699
R012702	R7	1-2	2	1,233	97	0.872
R012703	R7	1-2	2	1,222	91	0.819
R012705	R7	1-2	2	1,231	89	0.785
R012706	R7	1-2	2	1,229	85	0.703
R012710	R7	1-2	2	1,180	92	0.829
R012713	R7	1-2	2	1,065	99	0.979
R013001	R11	1-2	2	1,237	94	0.816
R013003	R11	1-2	2	1,239	100	0.996
R013005	R11	1-2	2	1,215	96	0.891
R013007	R11	1-2	2	1,183	99	0.957
R013008	R11	1-2	2	1,152	91	0.832
R013009	R11	1-2	2	1,131	96	0.874
R013010	R11	1-2	2	1,115	97	0.920
R013011	R11	1-2	2	1,098	86	0.747
R013203	R6	1-2	2	1,236	99	0.932
R013205	R6	1-2	2	1,232	96	0.836
R013207	R6	1-2	2	1,226	90	0.772
R013209	R6	1-2	2	1,210	98	0.944
R013211	R6	1-2	2	1,088	84	0.665
R013402	R10	1-2	2	1,233	98	0.964
R013405	R10	1-2	2	1,229	96	0.922
R013407	R10	1-2	2	1,184	95	0.900
R013409	R10	1-2	2	1,151	96	0.924
R013411	R10	1-2	2	1,049	94	0.868
R013412	R10	1-2	2	998	94	0.741
R015901	R4	1-2	2	1,219	94	0.894
R017101	R3	1-2	2	1,238	94	0.891
R017108	R3	1-2	2	1,136	98	0.972
R017210	R8	1-2	2	1,075	91	0.705

* Cohen's Kappa is a measure of reliability that is appropriate for items that are dichotomized. These items are dichotomized into right and wrong.

[†] Rescored responses from the national and state assessment samples contributed to these statistics.

Table C-3
*Score Range, Percent Agreement, and Cohen's Kappa**
for the Dichotomously Scored Constructed-Response Reading Items
Used in 1998 National Main Assessment Scaling, Grade 12

Item	Block	Range of Response Codes	Correct Response Codes	Sample Size	Percent Agreement	Cohen's Kappa
R013203	R6	1-2	2	536	100	0.967
R013205	R6	1-2	2	529	98	0.873
R013207	R6	1-2	2	527	89	0.666
R013209	R6	1-2	2	520	97	0.939
R013211	R6	1-2	2	496	85	0.709
R013402	R10	1-2	2	508	98	0.962
R013405	R10	1-2	2	503	94	0.835
R013407	R10	1-2	2	485	94	0.839
R013409	R10	1-2	2	475	94	0.844
R013411	R10	1-2	2	426	94	0.798
R013412	R10	1-2	2	416	89	0.596
R013501	R4	1-2	2	489	92	0.864
R013503	R4	1-2	2	485	97	0.949
R013505	R4	1-2	2	467	89	0.749
R013508	R4	1-2	2	358	90	0.797
R013509	R4	1-2	2	333	92	0.831
R013701	R7	1-2	2	494	84	0.672
R013702	R7	1-2	2	496	83	0.677
R013704	R7	1-2	2	493	90	0.785
R013708	R7	1-2	2	474	86	0.734
R013710	R7	1-2	2	460	95	0.890
R013712	R7	1-2	2	405	84	0.689
R013902	R11	1-2	2	508	97	0.933
R013903	R11	1-2	2	508	98	0.965
R013904	R11	1-2	2	505	98	0.932
R013906	R11	1-2	2	505	93	0.882
R013908	R11	1-2	2	503	89	0.806
R013910	R11	1-2	2	497	97	0.945
R013913	R11	1-2	2	488	94	0.889
R015503	R13	1-2	2	506	95	0.714
R015505	R13	1-2	2	502	89	0.804
R015509	R13	1-2	2	504	90	0.838
R015512	R13	1-2	2	498	94	0.863
R017101	R3	1-2	2	496	96	0.908
R017108	R3	1-2	2	464	96	0.949

*Cohen's Kappa is a measure of reliability that is appropriate for items that are dichotomized. These items are dichotomized into right and wrong.

Table C-4
*Score Range, Percent Agreement, and Intraclass Correlation
 for the Polytomously Scored Constructed-Response Reading Items
 Used in 1998 National Main Assessment Scaling, Grade 4**

Item	Block	Range of Response Codes[†]	Sample Size	Percent Agreement	Intraclass Correlation
R012111	R4	1-4	1,555	91	0.946
R012204	R6	1-4	1,894	81	0.906
R012512	R10	1-4	1,591	90	0.957
R012607	R5	1-4	1,770	85	0.867
R012708	R7	1-4	1,637	87	0.908
R015702	R8	1-3	2,036	87	0.841
R015703	R8	1-3	2,017	89	0.862
R015704	R8	1-3	1,978	84	0.870
R015705	R8	1-3	1,963	90	0.942
R015707	R8	1-4	1,834	89	0.904
R015709	R8	1-3	1,558	88	0.881
R015803	R9	1-3	1,891	88	0.841
R015804	R9	1-4	1,845	83	0.873
R015806	R9	1-3	1,706	87	0.884
R015807	R9	1-3	1,548	87	0.880
R015809	R9	1-3	1,389	89	0.858
R017003	R3	1-3	2,019	90	0.917
R017007	R3	1-4	1,868	78	0.899
R017009	R3	1-3	1,613	87	0.821

* Rescored responses from the national and state assessment samples contributed to these statistics.

† Response codes used here are from the scoring process. They do not reflect the credit students received for the responses. See the subject-area analysis chapters (Reading-Chapter 15, Writing-Chapter 19; Civics-Chapter 23) for the scoring categories used in all other analyses.

Table C-5
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Reading Items
Used in 1998 National Main Assessment Scaling, Grade 8**

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
R012607	R5	1-4	1,315	84	0.882
R012708	R7	1-4	1,210	86	0.913
R013004	R11	1-4	1,234	88	0.950
R013201	R6	1-4	1,244	80	0.867
R013212	R6	1-4	1,106	87	0.914
R013403	R10	1-4	1,233	98	0.987
R013406	R10	1-4	1,217	91	0.963
R015902	R4	1-3	1,222	94	0.949
R015904	R4	1-3	1,203	92	0.881
R015905	R4	1-3	1,157	91	0.918
R015906	R4	1-4	1,155	82	0.781
R015907	R4	1-3	1,063	84	0.791
R015908	R4	1-3	899	88	0.888
R016101	R9	1-3	1,317	94	0.953
R016104	R9	1-3	1,315	91	0.894
R016107	R9	1-3	1,151	94	0.950
R016108	R9	1-3	1,250	85	0.837
R016109	R9	1-3	1,248	93	0.911
R016201	R13	1-3	1,251	98	0.824
R016202	R13	1-3	1,247	94	0.886
R016204	R13	1-4	1,243	91	0.831
R016205	R13	1-3	1,244	92	0.906
R016207	R13	1-3	1,248	96	0.977
R016210	R13	1-4	1,112	82	0.839
R016211	R13	1-3	1,220	93	0.890
R016212	R13	1-3	1,189	92	0.939
R016213	R13	1-3	1,201	89	0.818
R017102	R3	1-3	1,240	90	0.929
R017104	R3	1-3	1,228	96	0.964
R017105	R3	1-4	1,219	84	0.909
R017107	R3	1-3	1,171	88	0.925
R017110	R3	1-3	1,034	94	0.940
R017204	R8	1-3	1,230	84	0.822
R017205	R8	1-4	1,227	64	0.761
R017208	R8	1-3	1,167	92	0.928

* Rescored responses from the national and state assessment samples contributed to these statistics.

Table C-6
*Score Range, Percent Agreement, and Intraclass Correlation
 for the Polytomously Scored Constructed-Response Reading Items
 Used in 1998 National Main Assessment Scaling, Grade 12*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
R013201	R6	1-4	540	81	0.910
R013212	R6	1-4	497	86	0.914
R013403	R10	1-4	505	97	0.987
R013406	R10	1-4	498	88	0.960
R013506	R4	1-4	444	85	0.913
R013706	R7	1-4	488	80	0.852
R013915	R11	1-4	414	97	0.992
R015507	R13	1-4	505	83	0.927
R015514	R13	1-4	497	90	0.957
R016101	R9	1-3	549	93	0.950
R016104	R9	1-3	543	87	0.798
R016107	R9	1-3	486	94	0.933
R016108	R9	1-3	513	82	0.811
R016109	R9	1-3	518	94	0.930
R016301	R5	1-3	495	85	0.862
R016302	R5	1-3	491	83	0.828
R016303	R5	1-3	480	85	0.884
R016305	R5	1-3	459	77	0.774
R016306	R5	1-3	419	84	0.856
R016307	R5	1-3	381	81	0.864
R016308	R5	1-4	373	85	0.920
R016401	R8	1-3	497	85	0.850
R016402	R8	1-3	494	66	0.669
R016403	R8	1-3	497	82	0.840
R016404	R8	1-3	493	88	0.886
R016405	R8	1-3	490	94	0.934
R016407	R8	1-3	430	83	0.866
R016408	R8	1-4	450	86	0.916
R016501	R14	1-3	509	90	0.859
R016502	R14	1-3	491	92	0.881
R016601	R14	1-3	499	79	0.715
R016602	R14	1-3	491	89	0.904
R016603	R14	1-3	502	82	0.762
R016604	R14	1-3	493	83	0.785
R016605	R14	1-3	479	80	0.668
R016701	R14	1-4	488	81	0.821

(continued)

Table C-6 (continued)
*Score Range, Percent Agreement, and Intraclass Correlation
 for the Polytomously Scored Constructed-Response Reading Items
 Used in 1998 National Main Assessment Scaling, Grade 12*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
R017102	R3	1-3	498	87	0.930
R017104	R3	1-3	499	93	0.954
R017105	R3	1-4	487	79	0.899
R017107	R3	1-3	473	89	0.939
R017110	R3	1-3	421	91	0.924

Table C-7
*Score Range, Percent Agreement, and Cohen's Kappa**
for the Dichotomously Scored Constructed-Response Reading Items
from 1994 That Were Rescored in 1998, Grade 4

Item	Block	Range of Response Codes	Correct Response Code	Sample Size	Percent Agreement	Cohen's Kappa
R012102	R4	1 - 2	2	1,004	95.518	0.918
R012104	R4	1 - 2	2	1,004	92.331	0.871
R012106	R4	1 - 2	2	1,004	87.351	0.792
R012108	R4	1 - 2	2	1,004	95.717	0.919
R012109	R4	1 - 2	2	1,004	94.323	0.898
R012112	R4	1 - 2	2	1,004	93.526	0.900
R012201	R6	1 - 2	2	995	93.266	0.871
R012206	R6	1 - 2	2	995	96.482	0.944
R012208	R6	1 - 2	2	995	92.965	0.890
R012210	R6	1 - 2	2	995	93.367	0.892
R012503	R10	1 - 2	2	887	88.726	0.797
R012504	R10	1 - 2	2	887	95.265	0.924
R012506	R10	1 - 2	2	887	92.559	0.883
R012508	R10	1 - 2	2	887	95.378	0.925
R012511	R10	1 - 2	2	887	93.574	0.896
R012601	R5	1 - 2	2	848	87.736	0.753
R012604	R5	1 - 2	2	848	94.222	0.889
R012611	R5	1 - 2	2	848	92.335	0.884
R012702	R7	1 - 2	2	1,151	93.571	0.860
R012703	R7	1 - 2	2	1,151	90.791	0.841
R012705	R7	1 - 2	2	1,151	93.831	0.886
R012706	R7	1 - 2	2	1,151	88.358	0.786
R012710	R7	1 - 2	2	1,151	95.743	0.930
R015802	R9	1 - 2	2	958	85.908	0.722

* Cohen's Kappa is a measure of reliability that is appropriate for items that are dichotomized. These items are dichotomized into right and wrong.

Table C-8
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Reading Items
from 1994 That Were Rescored in 1998, Grade 4*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
R012111	R4	1 - 4	1,004	90.438	0.968
R012204	R6	1 - 4	995	78.291	0.914
R012512	R10	1 - 4	887	82.976	0.946
R012607	R5	1 - 4	848	86.792	0.880
R012708	R7	1 - 4	1,151	85.491	0.911
R015702	R8	1 - 3	908	83.921	0.858
R015703	R8	1 - 3	908	86.013	0.886
R015704	R8	1 - 3	908	82.159	0.894
R015705	R8	1 - 3	908	88.436	0.949
R015707	R8	1 - 4	908	86.344	0.913
R015709	R8	1 - 3	908	91.520	0.942
R015803	R9	1 - 3	958	84.760	0.855
R015804	R9	1 - 4	958	80.167	0.892
R015806	R9	1 - 3	958	81.315	0.888
R015807	R9	1 - 3	958	82.463	0.923
R015809	R9	1 - 3	958	87.265	0.936

Table C-9
*Score Range, Percent Agreement, and Cohen's Kappa**
for the Dichotomously Scored Constructed-Response Reading Items
from 1994 That Were Rescored in 1998, Grade 8

Item	Block	Range of Response Codes	Correct Response Code	Sample Size	Percent Agreement	Cohen's Kappa
R012601	R5	1 - 2	2	1,090	86.330	0.742
R012604	R5	1 - 2	2	1,090	91.284	0.844
R012611	R5	1 - 2	2	1,090	89.083	0.786
R012702	R7	1 - 2	2	887	95.716	0.824
R012703	R7	1 - 2	2	887	83.766	0.706
R012705	R7	1 - 2	2	887	88.050	0.791
R012706	R7	1 - 2	2	887	83.315	0.678
R012710	R7	1 - 2	2	887	91.657	0.857
R012713	R7	1 - 2	2	887	98.760	0.979
R013001	R11	1 - 2	2	820	92.927	0.825
R013003	R11	1 - 2	2	820	99.146	0.983
R013005	R11	1 - 2	2	820	89.512	0.766
R013007	R11	1 - 2	2	820	97.927	0.953
R013008	R11	1 - 2	2	820	91.341	0.861
R013009	R11	1 - 2	2	820	92.561	0.838
R013010	R11	1 - 2	2	820	92.927	0.863
R013011	R11	1 - 2	2	820	84.512	0.760
R013203	R6	1 - 2	2	1,004	92.729	0.758
R013205	R6	1 - 2	2	1,004	94.920	0.883
R013207	R6	1 - 2	2	1,004	87.948	0.780
R013209	R6	1 - 2	2	1,004	96.215	0.910
R013211	R6	1 - 2	2	1,004	87.450	0.791
R013402	R10	1 - 2	2	824	97.937	0.962
R013405	R10	1 - 2	2	824	90.413	0.827
R013407	R10	1 - 2	2	824	97.816	0.961
R013409	R10	1 - 2	2	824	90.777	0.849
R013411	R10	1 - 2	2	824	93.447	0.890
R013412	R10	1 - 2	2	824	88.107	0.790
R015901	R4	1 - 2	2	973	90.236	0.834

* Cohen's Kappa is a measure of reliability that is appropriate for items that are dichotomized. These items are dichotomized into right and wrong.

Table C-10
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Reading Items
from 1994 That Were Rescored in 1998, Grade 8*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
R012607	R5	1 - 4	1,090	77.523	0.848
R012708	R7	1 - 4	887	77.339	0.866
R013004	R11	1 - 4	820	63.659	0.856
R013201	R6	1 - 4	1,004	83.865	0.906
R013212	R6	1 - 4	1,004	89.044	0.923
R013403	R10	1 - 4	824	95.995	0.978
R013406	R10	1 - 4	824	85.194	0.946
R015902	R4	1 - 3	973	87.770	0.914
R015904	R4	1 - 3	973	87.359	0.821
R015905	R4	1 - 3	973	86.639	0.899
R015906	R4	1 - 4	973	73.895	0.807
R015907	R4	1 - 3	973	84.275	0.896
R015908	R4	1 - 3	973	86.228	0.913
R016101	R9	1 - 3	794	86.272	0.902
R016104	R9	1 - 3	794	83.879	0.798
R016107	R9	1 - 3	794	93.451	0.973
R016108	R9	1 - 3	794	80.101	0.863
R016109	R9	1 - 3	794	88.791	0.897
R016201	R13	1 - 3	794	94.081	0.804
R016202	R13	1 - 3	794	88.917	0.832
R016204	R13	1 - 4	794	87.531	0.851
R016205	R13	1 - 3	794	87.154	0.886
R016207	R13	1 - 3	794	88.665	0.930
R016210	R13	1 - 4	794	73.552	0.890
R016211	R13	1 - 3	794	85.642	0.851
R016212	R13	1 - 3	794	89.924	0.944
R016213	R13	1 - 3	794	87.406	0.914

Table C-11
*Score Range, Percent Agreement, and Cohen's Kappa**
for the Dichotomously Scored Constructed-Response Reading Items
from 1994 That Were Rescored in 1998, Grade 12

Item	Block	Range of Response Codes	Correct Response Code	Sample Size	Percent Agreement	Cohen's Kappa
R013203	R6	1 - 2	2	987	96.150	0.775
R013205	R6	1 - 2	2	987	98.176	0.910
R013207	R6	1 - 2	2	987	87.335	0.691
R013209	R6	1 - 2	2	987	96.150	0.926
R013211	R6	1 - 2	2	987	83.992	0.736
R013402	R10	1 - 2	2	716	97.626	0.952
R013405	R10	1 - 2	2	716	91.480	0.801
R013407	R10	1 - 2	2	716	94.832	0.887
R013409	R10	1 - 2	2	716	90.922	0.801
R013411	R10	1 - 2	2	716	94.972	0.894
R013412	R10	1 - 2	2	716	86.173	0.740
R013501	R4	1 - 2	2	1,074	90.782	0.838
R013503	R4	1 - 2	2	1,074	93.948	0.905
R013505	R4	1 - 2	2	1,074	88.082	0.777
R013508	R4	1 - 2	2	1,074	90.223	0.846
R013509	R4	1 - 2	2	1,074	91.993	0.877
R013701	R7	1 - 2	2	894	76.510	0.535
R013702	R7	1 - 2	2	894	79.866	0.616
R013704	R7	1 - 2	2	894	88.479	0.777
R013708	R7	1 - 2	2	894	84.452	0.729
R013710	R7	1 - 2	2	894	89.597	0.797
R013712	R7	1 - 2	2	894	86.242	0.789
R013902	R11	1 - 2	2	731	90.971	0.800
R013903	R11	1 - 2	2	731	93.844	0.890
R013904	R11	1 - 2	2	731	95.486	0.866
R013906	R11	1 - 2	2	731	90.424	0.831
R013908	R11	1 - 2	2	731	85.636	0.745
R013910	R11	1 - 2	2	731	94.938	0.919
R013913	R11	1 - 2	2	731	92.886	0.883
R015503	R13	1 - 2	2	789	94.297	0.745
R015505	R13	1 - 2	2	789	87.706	0.787
R015509	R13	1 - 2	2	789	86.946	0.788
R015512	R13	1 - 2	2	789	91.255	0.841

* Cohen's Kappa is a measure of reliability that is appropriate for items that are dichotomized. These items are dichotomized into right and wrong.

Table C-12
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Reading Items
from 1994 That Were Rescored in 1998, Grade 12*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
R013201	R6	1 - 4	987	78.014	0.892
R013212	R6	1 - 4	987	85.816	0.935
R013403	R10	1 - 4	716	94.972	0.974
R013406	R10	1 - 4	716	85.894	0.949
R013506	R4	1 - 4	1,074	83.426	0.906
R013706	R7	1 - 4	894	76.063	0.826
R015507	R13	1 - 4	789	83.650	0.927
R015514	R13	1 - 4	789	83.523	0.926
R016101	R9	1 - 3	717	88.703	0.907
R016104	R9	1 - 3	717	82.287	0.699
R016107	R9	1 - 3	717	92.608	0.962
R016108	R9	1 - 3	717	77.964	0.834
R016109	R9	1 - 3	717	89.958	0.920
R016301	R5	1 - 3	1,073	69.059	0.762
R016302	R5	1 - 3	1,073	84.716	0.873
R016303	R5	1 - 3	1,073	87.512	0.915
R016305	R5	1 - 3	1,073	80.336	0.899
R016306	R5	1 - 3	1,073	80.522	0.888
R016307	R5	1 - 3	1,073	85.834	0.913
R016308	R5	1 - 4	1,073	82.665	0.897
R016401	R8	1 - 3	992	84.375	0.861
R016402	R8	1 - 3	992	62.500	0.744
R016403	R8	1 - 3	992	82.157	0.876
R016404	R8	1 - 3	992	88.710	0.908
R016405	R8	1 - 3	992	88.306	0.908
R016407	R8	1 - 3	992	81.754	0.911
R016408	R8	1 - 4	992	85.181	0.909
R016501	R14	1 - 3	746	84.584	0.812
R016502	R14	1 - 3	746	87.399	0.871
R016601	R14	1 - 4	746	76.810	0.781
R016602	R14	1 - 3	746	80.965	0.861
R016603	R14	1 - 3	746	81.769	0.779
R016604	R14	1 - 3	746	78.552	0.803
R016605	R14	1 - 3	746	79.893	0.698
R016701	R14	1 - 4	746	82.440	0.879

Table C-13
*Score Range, Percent Agreement, and Intraclass Correlation
 for the Polytomously Scored Constructed-Response Writing Items
 Used in 1998 National Main Assessment Scaling, Grade 4*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
W004002	W3	1-6	433	76	0.943
W004102	W4	1-6	507	68	0.883
W004202	W5	1-6	540	72	0.903
W004302	W6	1-6	440	78	0.930
W004402	W7	1-6	446	78	0.917
W004502	W8	1-6	432	82	0.942
W004602	W9	1-6	449	78	0.918
W004702	W10	1-6	448	80	0.953
W004802	W11	1-6	467	76	0.926
W004902	W12	1-6	494	78	0.925
W005002	W13	1-6	454	80	0.905
W005102	W14	1-6	457	79	0.886
W005202	W15	1-6	536	75	0.915
W005302	W16	1-6	548	78	0.893
W005402	W17	1-6	751	81	0.927
W005502	W18	1-6	444	76	0.922
W005602	W19	1-6	641	70	0.911
W005702	W20	1-6	440	79	0.928
W005802	W21	1-6	432	78	0.932
W005902	W22	1-6	444	75	0.911

Table C-14
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Writing Items
Used in 1998 National Main Assessment Scaling, Grade 8**

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
W006002	W3	1-6	1,127	69	0.866
W006102	W4	1-6	1,120	66	0.809
W006202	W5	1-6	1,135	76	0.896
W006302	W6	1-6	1,129	64	0.828
W006402	W7	1-6	1,438	72	0.892
W006502	W8	1-6	1,132	83	0.921
W006602	W9	1-6	1,141	81	0.909
W006702	W10	1-6	478	62	0.797
W006802	W11	1-6	1,116	71	0.850
W006902	W12	1-6	1,137	78	0.893
W007002	W13	1-6	1,130	72	0.822
W007102	W14	1-6	1,120	68	0.793
W007202	W15	1-6	1,120	79	0.888
W007302	W16	1-6	1,129	69	0.851
W007402	W17	1-6	1,130	75	0.893
W007502	W18	1-6	483	73	0.863
W007602	W19	1-6	1,452	74	0.887
W007702	W20	1-6	1,129	71	0.847
W007802	W21	1-6	1,129	66	0.842
W007902	W22	1-6	1,127	68	0.824
W008002	W23	1-6	1,134	76	0.875
W008102	W24	1-6	1,129	64	0.834
W008202	W25	1-6	563	67	0.881

* Rescored responses from the national and state assessment samples contributed to these statistics.

Table C-15
*Score Range, Percent Agreement, and Intraclass Correlation
 for the Polytomously Scored Constructed-Response Writing Items
 Used in 1998 National Main Assessment Scaling, Grade 12*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
W008302	W3	1-6	435	87	0.924
W008402	W4	1-6	449	74	0.857
W008502	W5	1-6	526	86	0.933
W008602	W6	1-6	466	73	0.815
W008702	W7	1-6	463	79	0.884
W008802	W8	1-6	454	65	0.832
W008902	W9	1-6	447	84	0.906
W009002	W10	1-6	496	73	0.878
W009102	W11	1-6	535	76	0.888
W009202	W12	1-6	436	81	0.925
W009302	W13	1-6	444	63	0.833
W009402	W14	1-6	430	79	0.917
W009502	W15	1-6	433	85	0.936
W009602	W16	1-6	519	76	0.882
W009702	W17	1-6	455	75	0.886
W009802	W18	1-6	507	76	0.870
W009902	W19	1-6	437	68	0.843
W010002	W20	1-6	515	63	0.789
W010102	W21	1-6	607	70	0.861
W010202	W22	1-6	449	58	0.790
W010302	W23	1-6	513	66	0.864
W010402	W24	1-6	439	79	0.914
W010502	W25	1-6	446	69	0.873

Table C-16
*Score Range, Percent Agreement, and Intraclass Correlation
 for the Polytomously Scored Constructed-Response Civics Items
 Used in 1998 National Main Assessment Scaling, Grade 4*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
P030004	C3	1-3	533	82	0.868
P030005	C3	1-3	522	92	0.913
P030007	C3	1-3	513	85	0.875
P030010	C3	1-4	489	91	0.942
P040102	C4	1-3	457	90	0.898
P040105	C4	1-3	452	86	0.868
P040109	C4	1-3	441	95	0.943
P040111	C4	1-3	414	93	0.946
P040203	C5	1-4	534	89	0.900
P040206	C5	1-3	529	95	0.946
P040209	C5	1-3	490	81	0.826
P040304	C6	1-3	474	94	0.959
P040310	C6	1-3	468	94	0.941
P040311	C6	1-3	456	98	0.974
P040402	C7	1-4	486	90	0.868
P040404	C7	1-4	484	82	0.867
P040409	C7	1-3	478	84	0.802
P040412	C7	1-4	447	81	0.905
P040502	C8	1-4	479	86	0.934
P040507	C8	1-3	470	92	0.839
P040510	C8	1-3	435	83	0.834

Table C-17
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Civics Items
Used in 1998 National Main Assessment Scaling, Grade 8*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
P040602	C10	1-3	500	89	0.938
P040608	C10	1-4	502	84	0.922
P040613	C10	1-3	490	85	0.906
P040703	C3	1-3	502	90	0.900
P040705	C3	1-3	500	92	0.898
P040708	C3	1-3	499	78	0.793
P040715	C3	1-3	479	86	0.911
P040803	C4	1-3	552	84	0.904
P040807	C4	1-4	551	95	0.964
P040813	C4	1-4	539	84	0.891
P040903	C5	1-3	491	68	0.707
P040906	C5	1-3	492	89	0.917
P040910	C5	1-3	487	85	0.834
P040913	C5	1-3	476	96	0.974
P041003	C6	1-3	551	86	0.898
P041007	C6	1-3	558	83	0.849
P041013	C6	1-3	553	88	0.846
P041014	C6	1-3	549	91	0.923
P041102	C7	1-3	494	90	0.942
P041106	C7	1-4	494	84	0.839
P041111	C7	1-3	474	92	0.933
P041116	C7	1-3	449	85	0.873
P041202	C8	1-3	500	89	0.918
P041205	C8	1-3	498	87	0.860
P041213	C8	1-4	494	83	0.905
P041307	C9	1-4	498	86	0.932
P041309	C9	1-3	496	92	0.952
P041315	C9	1-3	491	86	0.924

Table C-18
*Score Range, Percent Agreement, and Intraclass Correlation
for the Polytomously Scored Constructed-Response Civics Items
Used in 1998 National Main Assessment Scaling, Grade 12*

Item	Block	Range of Response Codes	Sample Size	Percent Agreement	Intraclass Correlation
P041404	C10	1-4	482	77	0.813
P041408	C10	1-3	476	81	0.888
P041412	C10	1-3	463	90	0.928
P041413	C10	1-3	463	83	0.871
P041503	C3	1-3	504	91	0.958
P041505	C3	1-3	510	75	0.840
P041509	C3	1-4	503	82	0.891
P041511	C3	1-3	500	87	0.923
P041606	C4	1-3	514	81	0.856
P041613	C4	1-3	506	93	0.958
P041614	C4	1-3	510	90	0.950
P041705	C5	1-3	459	73	0.806
P041706	C5	1-4	460	83	0.889
P041711	C5	1-3	449	88	0.913
P041713	C5	1-3	430	88	0.939
P041804	C6	1-3	487	72	0.815
P041806	C6	1-3	482	92	0.962
P041815	C6	1-3	473	87	0.903
P041902	C7	1-3	465	87	0.918
P041905	C7	1-4	466	79	0.829
P041907	C7	1-4	465	91	0.949
P041912	C7	1-3	459	80	0.792
P042002	C8	1-3	472	85	0.927
P042008	C8	1-3	472	82	0.904
P042009	C8	1-3	469	88	0.926
P042012	C8	1-3	464	93	0.971
P042102	C9	1-3	479	86	0.917
P042103	C9	1-4	479	86	0.887

Appendix D

DIFFERENTIAL ITEM FUNCTIONING (DIF) RESULTS

Differential item functioning (DIF) results for the reading and civics assessments are given in the tables below. Results for the writing assessment DIF analysis are detailed in Chapter 19.

Table D-1

*1998 Reading Items Identified as “C” or “CC” Items in at Least One Comparison**

Item	Block	Scale	Category	Grade	Comparison	Group Favored
R017203	R8	Reading to Gain Information	C	8	Male/Female	Male

* For each grade for which an item was administered, three comparisons were performed: Male/Female, White/Black, and White/Hispanic.

Table D-2

*1998 Civics Items Identified as “C” or “CC” Items in at Least One Comparison**

Item	Block	Scale	Category	Grade	Comparison	Group Favored
P040505	C8	Overall	C	4	White/Black	Black
P040801	C4	Overall	C	8	White/Hispanic	Hispanic
P040905	C5	Overall	C	8	Male/Female	Male
P040608	C10	Overall	CC	8	Male/Female	Female
P041816	C6	Overall	C	12	White/Black	Black
P042013	C8	Overall	C	12	White/Black	Black
P041705	C5	Overall	CC	12	White/Black	Black
P041804	C6	Overall	CC	12	White/Black	White
P042008	C8	Overall	CC	12	White/Black	White
P042012	C8	Overall	CC	12	White/Black	White
P041507	C3	Overall	C	12	Male/Female	Female

* For each grade for which an item was administered, three comparisons were performed: Male/Female, White/Black, and White/Hispanic.

Appendix E

IRT PARAMETERS

This appendix contains tables of IRT (item response theory) parameters for NAEP items that were scaled in each subject area for which IRT scales were created, as well as the block in which each item appears for each age class (*Block*) and the position of each item within its block (*Item*). Note that item parameters shown in this appendix are in the metrics used for the original calibration of the scales.

Table E-1
IRT Parameters for the 1998 Reading Items
Reading for Literary Experience Scale, Grade 4

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)	
1R017001	R3	1A	0.623	(0.038)	-0.872	(0.069)	0.000	(0.000)						
1R017002	R3	2	1.506	(0.110)	-0.495	(0.056)	0.215	(0.030)						
1R017003	R3	3A	0.476	(0.026)	0.431	(0.040)	0.000	(0.000)	0.012	(0.073)	-0.012	(0.078)		
1R017004	R3	4A	0.920	(0.059)	1.008	(0.050)	0.000	(0.000)						
1R017005	R3	5	0.607	(0.094)	0.712	(0.136)	0.251	(0.041)						
1R017006	R3	6A	1.052	(0.066)	1.009	(0.045)	0.000	(0.000)						
1R017007	R3	7A	0.641	(0.030)	0.407	(0.026)	0.000	(0.000)	0.359	(0.065)	0.138	(0.066)	-0.497	(0.070)
1R017008	R3	8	1.288	(0.126)	0.554	(0.052)	0.190	(0.024)						
1R017009	R3	9A	0.496	(0.021)	-0.278	(0.058)	0.000	(0.000)	1.842	(0.102)	-1.842	(0.079)		
1R012101	R4	1	1.798	(0.105)	-0.899	(0.044)	0.248	(0.025)						
1R012102	R4	2A	0.754	(0.031)	0.015	(0.029)	0.000	(0.000)						
1R012103	R4	3	1.342	(0.068)	-0.456	(0.042)	0.175	(0.021)						
1R012104	R4	4A	0.763	(0.031)	-0.284	(0.032)	0.000	(0.000)						
1R012105	R4	5	1.110	(0.073)	0.148	(0.049)	0.244	(0.021)						
1R012106	R4	6A	1.025	(0.039)	0.107	(0.023)	0.000	(0.000)						
1R012107	R4	7	1.228	(0.083)	0.259	(0.044)	0.247	(0.020)						
1R012108	R4	8A	0.647	(0.029)	-1.008	(0.054)	0.000	(0.000)						
1R012109	R4	9A	0.520	(0.027)	-1.425	(0.080)	0.000	(0.000)						
1R012110	R4	10	0.951	(0.068)	-0.864	(0.103)	0.319	(0.039)						
1R012111	R4	11A	1.026	(0.037)	1.248	(0.024)	0.000	(0.000)	0.851	(0.025)	-0.851	(0.056)		
1R012112	R4	12A	0.757	(0.038)	-0.630	(0.048)	0.000	(0.000)						
1R012601	R5	1A	0.832	(0.040)	1.118	(0.042)	0.000	(0.000)						
1R012602	R5	2	1.472	(0.108)	1.204	(0.036)	0.167	(0.010)						
1R012603	R5	3	1.859	(0.110)	0.213	(0.030)	0.265	(0.017)						
1R012604	R5	4A	1.123	(0.050)	1.057	(0.031)	0.000	(0.000)						
1R012605	R5	5	1.133	(0.113)	0.916	(0.048)	0.297	(0.018)						
1R012606	R5	6	1.374	(0.092)	0.307	(0.041)	0.269	(0.019)						
1R012607	R5	7A	1.212	(0.041)	1.102	(0.016)	0.000	(0.000)	0.627	(0.023)	-0.059	(0.031)	-0.568	(0.052)
1R012608	R5	8	0.504	(0.044)	-0.932	(0.199)	0.247	(0.051)						
1R012609	R5	9	1.415	(0.134)	0.891	(0.039)	0.271	(0.016)						
1R012610	R5	10	2.303	(0.177)	0.609	(0.030)	0.418	(0.015)						
1R012611	R5	11A	0.814	(0.037)	0.306	(0.030)	0.000	(0.000)						
1R015801	R9	1	0.966	(0.059)	-1.318	(0.099)	0.244	(0.039)						

Table E-1 (continued)
IRT Parameters for the 1998 Reading Items
Reading for Literary Experience Scale, Grade 4

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)	
1R015802	R9	2A	0.506	(0.035)	-1.272	(0.099)	0.000	(0.000)						
1R015803	R9	3A	0.646	(0.024)	-0.386	(0.040)	0.000	(0.000)	1.573	(0.074)	-1.573	(0.052)		
1R015804	R9	4A	0.659	(0.017)	0.693	(0.024)	0.000	(0.000)	2.081	(0.046)	-0.361	(0.038)	-1.720	(0.082)
1R015805	R9	5	1.029	(0.082)	0.327	(0.059)	0.300	(0.023)						
1R015806	R9	6A	0.698	(0.021)	0.268	(0.026)	0.000	(0.000)	1.089	(0.039)	-1.089	(0.040)		
1R015807	R9	7A	0.625	(0.027)	-0.087	(0.042)	0.000	(0.000)	1.293	(0.071)	-1.293	(0.059)		
1R015808	R9	8	0.721	(0.053)	-1.193	(0.142)	0.247	(0.046)						
1R015809	R9	9A	0.623	(0.019)	0.106	(0.032)	0.000	(0.000)	1.381	(0.052)	-1.381	(0.048)		

Table E-2
IRT Parameters for the 1998 Reading Items
Reading to Gain Information Scale, Grade 4

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
2R012201	R6	1A	0.269 (0.020)	-0.904 (0.097)	0.000 (0.000)			
2R012202	R6	2	0.941 (0.073)	0.401 (0.061)	0.264 (0.023)			
2R012203	R6	3	0.793 (0.071)	0.642 (0.069)	0.247 (0.024)			
2R012204	R6	4A	0.509 (0.017)	0.133 (0.022)	0.000 (0.000)	1.139 (0.055)	-0.350 (0.051)	-0.789 (0.059)
2R012205	R6	5	1.032 (0.082)	0.507 (0.054)	0.248 (0.022)			
2R012206	R6	6A	1.172 (0.045)	0.645 (0.024)	0.000 (0.000)			
2R012207	R6	7	0.533 (0.042)	-0.835 (0.159)	0.218 (0.045)			
2R012208	R6	8A	0.877 (0.036)	-0.523 (0.034)	0.000 (0.000)			
2R012209	R6	9	1.203 (0.074)	0.257 (0.042)	0.165 (0.019)			
2R012210	R6	10A	0.761 (0.036)	-1.242 (0.058)	0.000 (0.000)			
2R012701	R7	1	1.104 (0.066)	-0.155 (0.057)	0.247 (0.026)			
2R012702	R7	2A	0.619 (0.028)	-1.113 (0.056)	0.000 (0.000)			
2R012703	R7	8A	1.154 (0.042)	0.645 (0.023)	0.000 (0.000)			
2R012704	R7	4	1.464 (0.093)	0.774 (0.028)	0.138 (0.012)			
2R012705	R7	5A	1.536 (0.067)	1.192 (0.027)	0.000 (0.000)			
2R012706	R7	6A	0.597 (0.034)	1.341 (0.065)	0.000 (0.000)			
2R012707	R7	3	2.300 (0.146)	0.416 (0.025)	0.264 (0.014)			
2R012708	R7	10A	0.673 (0.024)	1.734 (0.028)	0.000 (0.000)	1.378 (0.037)	0.441 (0.049)	-1.819 (0.172)
2R012709	R7	9	0.562 (0.055)	-0.073 (0.150)	0.237 (0.044)			
2R012710	R7	11A	0.970 (0.048)	0.906 (0.035)	0.000 (0.000)			
2R015701	R8	1	0.883 (0.059)	-1.015 (0.109)	0.310 (0.042)			
2R015702	R8	2A	0.718 (0.025)	0.161 (0.038)	0.000 (0.000)	1.517 (0.056)	-1.517 (0.057)	
2R015703	R8	3A	0.716 (0.018)	0.077 (0.026)	0.000 (0.000)	1.417 (0.040)	-1.417 (0.038)	
2R015704	R8	4A	0.621 (0.022)	-0.145 (0.024)	0.000 (0.000)	0.402 (0.043)	-0.402 (0.038)	
2R015705	R8	5A	0.823 (0.027)	0.275 (0.021)	0.000 (0.000)	0.740 (0.032)	-0.740 (0.033)	
2R015706	R8	6	1.261 (0.113)	1.084 (0.039)	0.206 (0.014)			
2R015707	R8	7A	0.562 (0.018)	0.419 (0.030)	0.000 (0.000)	1.209 (0.045)	-1.209 (0.051)	
2R015708	R8	8	0.597 (0.043)	-0.206 (0.102)	0.156 (0.033)			
2R015709	R8	9A	0.524 (0.025)	1.137 (0.044)	0.000 (0.000)	0.366 (0.050)	-0.366 (0.069)	
2R012501	R10	1	0.609 (0.222)	3.921 (1.005)	0.309 (0.013)			
2R012502	R10	2	0.938 (0.063)	-1.691 (0.121)	0.294 (0.046)			
2R012503	R10	3A	1.086 (0.037)	-0.060 (0.022)	0.000 (0.000)			
2R012504	R10	4A	0.795 (0.030)	-0.238 (0.029)	0.000 (0.000)			

Table E-2 (continued)
IRT Parameters for the 1998 Reading Items
Reading to Gain Information Scale, Grade 4

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)	
2R012505	R10	5	1.414	(0.080)	-0.608	(0.051)	0.275	(0.027)						
2R012506	R10	6A	0.838	(0.032)	-0.076	(0.027)	0.000	(0.000)						
2R012507	R10	7	1.185	(0.074)	-0.590	(0.067)	0.312	(0.031)						
2R012508	R10	8A	1.031	(0.037)	-0.310	(0.026)	0.000	(0.000)						
2R012509	R10	9	0.579	(0.049)	-0.688	(0.167)	0.276	(0.048)						
2R012510	R10	10	0.970	(0.062)	-0.502	(0.078)	0.270	(0.032)						
2R012511	R10	11A	1.002	(0.039)	-0.530	(0.031)	0.000	(0.000)						
2R012512	R10	12A	0.413	(0.016)	0.512	(0.029)	0.000	(0.000)	0.892	(0.069)	0.242	(0.067)	-1.133	(0.083)

Table E-3
IRT Parameters for the 1998 Reading Items
Reading for Literary Experience Scale, Grade 8

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)	
1R017101	R3	1A	1.169	(0.052)	-0.299	(0.032)	0.000	(0.000)						
1R017102	R3	2A	0.566	(0.032)	1.150	(0.052)	0.000	(0.000)	0.182	(0.058)	-0.182	(0.081)		
1R017103	R3	3	0.664	(0.080)	0.423	(0.116)	0.218	(0.038)						
1R017104	R3	4A	1.240	(0.055)	0.784	(0.021)	0.000	(0.000)	0.269	(0.030)	-0.269	(0.037)		
1R017105	R3	5A	0.892	(0.035)	0.922	(0.023)	0.000	(0.000)	0.716	(0.042)	0.392	(0.044)	-1.108	(0.077)
1R017106	R3	6	0.858	(0.182)	1.754	(0.161)	0.247	(0.022)						
1R017107	R3	7A	0.556	(0.030)	0.724	(0.041)	0.000	(0.000)	0.437	(0.059)	-0.437	(0.072)		
1R017108	R3	8A	1.491	(0.092)	1.106	(0.036)	0.000	(0.000)						
1R017109	R3	9	0.759	(0.067)	-0.801	(0.146)	0.243	(0.052)						
1R017110	R3	10A	1.221	(0.063)	0.063	(0.031)	0.000	(0.000)						
1R015901	R4	1A	0.517	(0.023)	-0.176	(0.040)	0.000	(0.000)						
1R015902	R4	2A	0.650	(0.020)	0.241	(0.024)	0.000	(0.000)	0.977	(0.037)	-0.977	(0.039)		
1R015903	R4	3	0.849	(0.064)	0.241	(0.069)	0.241	(0.025)						
1R015904	R4	4A	0.595	(0.020)	1.682	(0.036)	0.000	(0.000)	1.293	(0.036)	-1.293	(0.084)		
1R015905	R4	5A	0.548	(0.020)	0.422	(0.027)	0.000	(0.000)	0.606	(0.043)	-0.606	(0.047)		
1R015906	R4	6A	0.506	(0.015)	2.189	(0.032)	0.000	(0.000)	2.803	(0.045)	0.245	(0.058)	-3.048	(0.326)
1R015907	R4	7A	0.488	(0.013)	0.378	(0.038)	0.000	(0.000)	1.836	(0.055)	-1.836	(0.063)		
1R015908	R4	8A	0.673	(0.027)	0.986	(0.032)	0.000	(0.000)	0.881	(0.040)	-0.881	(0.058)		
1R012601	R5	1A	0.751	(0.028)	0.061	(0.028)	0.000	(0.000)						
1R012602	R5	2	1.029	(0.063)	0.398	(0.042)	0.158	(0.018)						
1R012603	R5	3	1.147	(0.065)	-0.928	(0.073)	0.258	(0.035)						
1R012604	R5	4A	0.818	(0.029)	0.053	(0.027)	0.000	(0.000)						
1R012605	R5	5	0.671	(0.049)	-0.210	(0.108)	0.217	(0.036)						
1R012606	R5	6	1.490	(0.082)	-0.703	(0.051)	0.259	(0.027)						
1R012607	R5	7A	0.635	(0.027)	0.502	(0.027)	0.000	(0.000)	1.141	(0.059)	-0.066	(0.055)	-1.075	(0.075)
1R012608	R5	8	0.616	(0.041)	-1.548	(0.173)	0.257	(0.058)						
1R012609	R5	9	1.331	(0.076)	-0.173	(0.047)	0.254	(0.022)						
1R012610	R5	10	1.365	(0.090)	-0.438	(0.064)	0.396	(0.027)						
1R012611	R5	11A	0.635	(0.038)	-0.768	(0.064)	0.000	(0.000)						

Table E-4
IRT Parameters for the 1998 Reading Items
Reading to Gain Information Scale, Grade 8

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)	
2R013201	R6	1A	0.709	(0.022)	0.743	(0.019)	0.000	(0.000)	0.969	(0.035)	-0.020	(0.037)	-0.948	(0.056)
2R013202	R6	2	0.733	(0.056)	-0.234	(0.101)	0.266	(0.034)						
2R013203	R6	3A	1.173	(0.050)	-1.793	(0.048)	0.000	(0.000)						
2R013204	R6	4	1.036	(0.070)	-0.176	(0.067)	0.316	(0.027)						
2R013205	R6	5A	1.078	(0.040)	-1.210	(0.038)	0.000	(0.000)						
2R013206	R6	6	0.772	(0.051)	0.065	(0.067)	0.160	(0.025)						
2R013207	R6	7A	0.720	(0.028)	-0.574	(0.037)	0.000	(0.000)						
2R013208	R6	8	1.531	(0.086)	-0.116	(0.038)	0.239	(0.020)						
2R013209	R6	9A	0.788	(0.038)	1.223	(0.047)	0.000	(0.000)						
2R013210	R6	10	1.530	(0.146)	1.694	(0.073)	0.283	(0.009)						
2R013211	R6	11A	0.580	(0.030)	0.797	(0.045)	0.000	(0.000)						
2R013212	R6	12A	0.593	(0.025)	1.756	(0.044)	0.000	(0.000)	1.903	(0.054)	-0.604	(0.090)	-1.299	(0.254)
2R012701	R7	1	1.052	(0.062)	-1.389	(0.092)	0.281	(0.041)						
2R012702	R7	2A	0.662	(0.030)	-1.996	(0.078)	0.000	(0.000)						
2R012707	R7	3	1.984	(0.127)	-0.676	(0.045)	0.373	(0.024)						
2R012704	R7	4	1.119	(0.063)	-0.424	(0.056)	0.219	(0.025)						
2R012705	R7	5A	0.966	(0.034)	0.040	(0.023)	0.000	(0.000)						
2R012706	R7	6A	0.510	(0.026)	0.500	(0.043)	0.000	(0.000)						
2R012711	R7	7	1.309	(0.109)	0.019	(0.061)	0.252	(0.029)						
2R012703	R7	8A	0.942	(0.033)	-0.205	(0.025)	0.000	(0.000)						
2R012709	R7	9	0.899	(0.071)	-0.415	(0.103)	0.400	(0.034)						
2R012708	R7	10A	0.584	(0.016)	0.668	(0.023)	0.000	(0.000)	1.594	(0.047)	0.275	(0.040)	-1.869	(0.077)
2R012710	R7	11A	0.833	(0.032)	-0.580	(0.033)	0.000	(0.000)						
2R012712	R7	12	0.995	(0.087)	0.340	(0.067)	0.367	(0.024)						
2R012713	R7	13A	1.251	(0.047)	-0.591	(0.028)	0.000	(0.000)						
2R017201	R8	1	0.808	(0.075)	-0.740	(0.143)	0.301	(0.049)						
2R017202	R8	2A	0.583	(0.029)	-0.389	(0.038)	0.000	(0.000)	0.555	(0.068)	-0.555	(0.054)		
2R017203	R8	3	0.888	(0.077)	-0.300	(0.099)	0.237	(0.038)						
2R017204	R8	4A	0.760	(0.030)	0.721	(0.033)	0.000	(0.000)	1.086	(0.043)	-1.086	(0.060)		
2R017205	R8	5A	0.632	(0.023)	0.598	(0.032)	0.000	(0.000)	1.902	(0.064)	-0.216	(0.052)	-1.686	(0.100)
2R017206	R8	6	0.808	(0.103)	0.637	(0.094)	0.271	(0.033)						
2R017207	R8	7A	0.360	(0.025)	1.523	(0.088)	0.000	(0.000)	0.859	(0.084)	-0.859	(0.130)		
2R017208	R8	8A	0.767	(0.028)	1.045	(0.036)	0.000	(0.000)	1.419	(0.043)	-1.419	(0.082)		

Table E-4 (continued)
IRT Parameters for the 1998 Reading Items
Reading to Gain Information Scale, Grade 8

NAEP ID	Block	Item	a _j (s.e.)	b _j (s.e.)	c _j (s.e.)	d _{j1} (s.e.)	d _{j2} (s.e.)	d _{j3} (s.e.)
2R017209	R8	9	1.635 (0.155)	0.445 (0.048)	0.314 (0.023)			
2R017210	R8	10A	0.586 (0.055)	1.799 (0.137)	0.000 (0.000)			
2R016201	R13	1A	0.491 (0.025)	-3.618 (0.144)	0.000 (0.000)	-0.077 (0.207)	0.077 (0.085)	
2R016202	R13	2A	0.677 (0.016)	-0.757 (0.035)	0.000 (0.000)	2.431 (0.074)	-2.431 (0.039)	
2R016203	R13	3	0.461 (0.041)	-0.765 (0.209)	0.270 (0.051)			
2R016204	R13	4A	0.556 (0.012)	-0.418 (0.034)	0.000 (0.000)	2.900 (0.110)	0.813 (0.043)	-3.713 (0.080)
2R016205	R13	5A	0.641 (0.016)	0.690 (0.028)	0.000 (0.000)	1.571 (0.037)	-1.571 (0.053)	
2R016206	R13	6	0.986 (0.062)	-0.879 (0.091)	0.318 (0.036)			
2R016207	R13	7A	0.570 (0.020)	0.276 (0.024)	0.000 (0.000)	0.184 (0.042)	-0.184 (0.044)	
2R016208	R13	8	0.824 (0.053)	-1.046 (0.110)	0.291 (0.041)			
2R016209	R13	9	1.119 (0.062)	-0.750 (0.066)	0.246 (0.030)			
2R016210	R13	10A	0.606 (0.023)	0.881 (0.034)	0.000 (0.000)	1.952 (0.062)	-0.058 (0.056)	-1.894 (0.128)
2R016211	R13	11A	0.500 (0.016)	-2.064 (0.039)	0.000 (0.000)	2.272 (0.128)	-2.272 (0.040)	
2R016212	R13	12A	0.395 (0.017)	-0.001 (0.033)	0.000 (0.000)	0.200 (0.062)	-0.200 (0.060)	
2R016213	R13	13A	0.396 (0.018)	-2.137 (0.074)	0.000 (0.000)	1.131 (0.118)	-1.131 (0.055)	

Table E-5
IRT Parameters for the 1998 Reading Items
Reading to Perform a Task Scale, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
3R016101	R9	1A	0.534 (0.018)	-0.111 (0.025)	0.000 (0.000)	0.069 (0.049)	-0.069 (0.045)	
3R016102	R9	2	1.015 (0.068)	-0.624 (0.084)	0.348 (0.033)			
3R016103	R9	3	1.525 (0.102)	0.418 (0.036)	0.308 (0.016)			
3R016104	R9	4A	0.739 (0.032)	-1.823 (0.065)	0.000 (0.000)			
3R016105	R9	5	1.437 (0.078)	-0.572 (0.046)	0.253 (0.024)			
3R016106	R9	6	1.020 (0.082)	0.996 (0.044)	0.180 (0.015)			
3R016107	R9	7A	0.700 (0.019)	-0.150 (0.020)	0.000 (0.000)	-0.162 (0.041)	0.162 (0.037)	
3R016108	R9	8A	0.396 (0.012)	0.069 (0.030)	0.000 (0.000)	-1.046 (0.071)	1.046 (0.070)	
3R016109	R9	9A	0.441 (0.012)	0.780 (0.038)	0.000 (0.000)	1.793 (0.052)	-1.793 (0.071)	
3R013401	R10	1	1.096 (0.064)	0.248 (0.042)	0.175 (0.019)			
3R013402	R10	2A	0.829 (0.031)	0.114 (0.026)	0.000 (0.000)			
3R013403	R10	3A	0.455 (0.011)	0.503 (0.026)	0.000 (0.000)	-2.178 (0.084)	2.178 (0.087)	
3R013404	R10	4	1.090 (0.075)	-0.043 (0.063)	0.337 (0.025)			
3R013405	R10	5A	0.971 (0.034)	-0.280 (0.025)	0.000 (0.000)			
3R013406	R10	6A	0.637 (0.028)	0.576 (0.037)	0.000 (0.000)			
3R013407	R10	7A	0.648 (0.027)	-0.626 (0.040)	0.000 (0.000)			
3R013408	R10	8	0.605 (0.048)	-0.004 (0.107)	0.203 (0.034)			
3R013409	R10	9A	0.714 (0.029)	-0.355 (0.034)	0.000 (0.000)			
3R013410	R10	10	0.875 (0.066)	-0.357 (0.096)	0.328 (0.035)			
3R013411	R10	11A	0.510 (0.026)	-1.023 (0.064)	0.000 (0.000)			
3R013412	R10	12A	0.405 (0.027)	-1.923 (0.128)	0.000 (0.000)			
3R013001	R11	1A	0.960 (0.036)	-1.069 (0.037)	0.000 (0.000)			
3R013002	R11	2	1.564 (0.079)	-0.351 (0.036)	0.198 (0.020)			
3R013003	R11	3A	0.975 (0.034)	-0.498 (0.027)	0.000 (0.000)			
3R013004	R11	4A	0.452 (0.025)	0.598 (0.045)	0.000 (0.000)	0.235 (0.072)	-0.235 (0.082)	
3R013005	R11	5A	0.825 (0.032)	-1.033 (0.041)	0.000 (0.000)			
3R013006	R11	6	0.886 (0.054)	-0.351 (0.073)	0.206 (0.030)			
3R013007	R11	7A	0.691 (0.030)	-1.292 (0.055)	0.000 (0.000)			
3R013008	R11	8A	0.730 (0.030)	-0.085 (0.031)	0.000 (0.000)			
3R013009	R11	9A	1.010 (0.041)	-1.258 (0.043)	0.000 (0.000)			
3R013010	R11	10A	0.846 (0.035)	-1.035 (0.043)	0.000 (0.000)			
3R013011	R11	11A	0.477 (0.025)	-0.316 (0.049)	0.000 (0.000)			
3R013012	R11	12	1.134 (0.075)	0.021 (0.055)	0.249 (0.025)			

Table E-6
IRT Parameters for the 1998 Reading Items
Reading for Literary Experience Scale, Grade 12

NAEP ID	Block	Item	a _j (s.e.)	b _j (s.e.)	c _j (s.e.)	d _{j1} (s.e.)	d _{j2} (s.e.)	d _{j3} (s.e.)
1R017101	R3	1A	1.210 (0.061)	-0.945 (0.043)	0.000 (0.000)			
1R017102	R3	2A	0.610 (0.028)	0.309 (0.032)	0.000 (0.000)	0.012 (0.059)	-0.012 (0.061)	
1R017103	R3	3	0.618 (0.061)	-0.449 (0.151)	0.220 (0.045)			
1R017104	R3	4A	1.011 (0.042)	0.021 (0.022)	0.000 (0.000)	0.205 (0.040)	-0.205 (0.036)	
1R017105	R3	5A	0.649 (0.025)	0.406 (0.027)	0.000 (0.000)	0.752 (0.065)	0.641 (0.057)	-1.394 (0.072)
1R017106	R3	6	0.549 (0.079)	0.824 (0.139)	0.228 (0.038)			
1R017107	R3	7A	0.457 (0.025)	0.382 (0.046)	0.000 (0.000)	0.828 (0.073)	-0.828 (0.080)	
1R017108	R3	8A	1.229 (0.063)	0.486 (0.029)	0.000 (0.000)			
1R017109	R3	9	0.594 (0.049)	-1.237 (0.157)	0.177 (0.045)			
1R017110	R3	10A	0.910 (0.050)	-0.473 (0.046)	0.000 (0.000)			
1R013501	R4	1A	0.985 (0.035)	-0.294 (0.026)	0.000 (0.000)			
1R013502	R4	2	1.463 (0.084)	-0.617 (0.050)	0.254 (0.026)			
1R013503	R4	3A	0.420 (0.024)	0.308 (0.050)	0.000 (0.000)			
1R013504	R4	4	0.646 (0.045)	-0.353 (0.104)	0.177 (0.035)			
1R013505	R4	5A	0.624 (0.027)	-1.020 (0.052)	0.000 (0.000)			
1R013506	R4	6A	0.413 (0.014)	1.632 (0.055)	0.000 (0.000)	-2.273 (0.107)	2.273 (0.122)	
1R013507	R4	7	1.011 (0.067)	0.234 (0.050)	0.183 (0.021)			
1R013508	R4	8A	0.319 (0.027)	1.410 (0.126)	0.000 (0.000)			
1R013509	R4	9A	0.709 (0.037)	0.623 (0.041)	0.000 (0.000)			
1R016301	R5	1A	0.452 (0.022)	0.394 (0.048)	0.000 (0.000)	1.214 (0.074)	-1.214 (0.082)	
1R016302	R5	2	0.395 (0.021)	0.108 (0.052)	0.000 (0.000)	1.153 (0.087)	-1.153 (0.087)	
1R016303	R5	3A	0.619 (0.022)	0.691 (0.027)	0.000 (0.000)	0.787 (0.037)	-0.787 (0.048)	
1R016304	R5	4	1.500 (0.098)	0.017 (0.044)	0.341 (0.021)			
1R016305	R5	5A	0.441 (0.024)	-0.351 (0.050)	0.000 (0.000)	0.953 (0.089)	-0.953 (0.074)	
1R016306	R5	6	0.540 (0.021)	0.484 (0.028)	0.000 (0.000)	0.211 (0.047)	-0.211 (0.052)	
1R016307	R5	7A	0.634 (0.026)	0.816 (0.030)	0.000 (0.000)	0.515 (0.041)	-0.515 (0.052)	
1R016308	R5	8A	0.469 (0.021)	1.586 (0.052)	0.000 (0.000)	0.312 (0.056)	-0.324 (0.092)	0.012 (0.129)

Table E-7
IRT Parameters for the 1998 Reading Items
Reading to Gain Information Scale, Grade 12

NAEP ID	Block	Item	a _j (s.e.)	b _j (s.e.)	c _j (s.e.)	d _{j1} (s.e.)	d _{j2} (s.e.)	d _{j3} (s.e.)
2R013201	R6	1A	0.567 (0.018)	0.020 (0.021)	0.000 (0.000)	1.096 (0.053)	-0.106 (0.044)	-0.991 (0.049)
2R013202	R6	2	0.654 (0.044)	-1.243 (0.140)	0.227 (0.046)			
2R013203	R6	3A	1.095 (0.053)	-2.293 (0.068)	0.000 (0.000)			
2R013204	R6	4	0.745 (0.049)	-1.573 (0.140)	0.250 (0.049)			
2R013205	R6	5A	1.102 (0.050)	-1.999 (0.059)	0.000 (0.000)			
2R013206	R6	6	0.752 (0.048)	-0.625 (0.096)	0.206 (0.036)			
2R013207	R6	7A	0.733 (0.045)	-1.455 (0.085)	0.000 (0.000)			
2R013208	R6	8	1.384 (0.087)	-1.127 (0.069)	0.302 (0.034)			
2R013209	R6	9A	0.524 (0.027)	0.756 (0.048)	0.000 (0.000)			
2R013210	R6	10	0.823 (0.092)	1.227 (0.066)	0.224 (0.020)			
2R013211	R6	11A	0.292 (0.030)	0.266 (0.098)	0.000 (0.000)			
2R013212	R6	12A	0.444 (0.013)	1.602 (0.037)	0.000 (0.000)	2.196 (0.052)	-0.694 (0.072)	-1.502 (0.163)
2R013701	R7	1A	0.418 (0.024)	0.298 (0.049)	0.000 (0.000)			
2R013702	R7	2A	0.558 (0.026)	0.125 (0.037)	0.000 (0.000)			
2R013703	R7	3	0.780 (0.051)	-2.151 (0.151)	0.239 (0.054)			
2R013704	R7	4A	0.577 (0.056)	2.371 (0.189)	0.000 (0.000)			
2R013705	R7	5	1.156 (0.070)	-1.140 (0.078)	0.281 (0.036)			
2R013706	R7	6A	0.611 (0.027)	-0.209 (0.036)	0.000 (0.000)			
2R013707	R7	7	0.678 (0.042)	-0.149 (0.075)	0.135 (0.027)			
2R013708	R7	8	0.202 (0.021)	1.130 (0.145)	0.000 (0.000)			
2R013709	R7	9	0.486 (0.062)	0.833 (0.140)	0.248 (0.037)			
2R013710	R7	10A	0.724 (0.038)	1.333 (0.057)	0.000 (0.000)			
2R013711	R7	11	0.376 (0.054)	1.134 (0.186)	0.223 (0.041)			
2R013712	R7	12A	0.558 (0.029)	-0.066 (0.042)	0.000 (0.000)			
2R016401	R8	1A	0.633 (0.030)	-0.667 (0.040)	0.000 (0.000)	0.963 (0.074)	-0.963 (0.049)	
2R016402	R8	2A	0.324 (0.017)	-1.164 (0.075)	0.000 (0.000)	1.627 (0.138)	-1.627 (0.092)	
2R016403	R8	3A	0.643 (0.020)	-0.149 (0.025)	0.000 (0.000)	0.989 (0.043)	-0.989 (0.037)	
2R016404	R8	4A	0.449 (0.011)	0.115 (0.041)	0.000 (0.000)	2.211 (0.062)	-2.211 (0.063)	
2R016405	R8	5A	0.422 (0.015)	-0.565 (0.045)	0.000 (0.000)	-2.853 (0.161)	2.853 (0.154)	
2R016406	R8	6	0.467 (0.045)	-0.889 (0.238)	0.288 (0.057)			
2R016407	R8	7A	0.547 (0.021)	-0.074 (0.028)	0.000 (0.000)	0.670 (0.050)	-0.670 (0.046)	
2R016408	R8	8A	0.437 (0.015)	1.190 (0.032)	0.000 (0.000)	0.334 (0.063)	1.048 (0.069)	-1.382 (0.104)
2R015501	R13	1	0.808 (0.056)	-0.765 (0.107)	0.306 (0.038)			

Table E-7 (continued)
IRT Parameters for the 1998 Reading Items
Reading to Gain Information Scale, Grade 12

NAEP ID	Block	Item	a _j (s.e.)	b _j (s.e.)	c _j (s.e.)	d _{j1} (s.e.)	d _{j2} (s.e.)	d _{j3} (s.e.)
2R015502	R13	2	0.798 (0.059)	0.147 (0.074)	0.224 (0.028)			
2R015503	R13	3A	0.517 (0.030)	-2.991 (0.149)	0.000 (0.000)			
2R015504	R13	4	0.650 (0.048)	-0.174 (0.101)	0.206 (0.033)			
2R015505	R13	5A	0.562 (0.025)	-0.099 (0.037)	0.000 (0.000)			
2R015506	R13	6	0.800 (0.061)	0.067 (0.081)	0.263 (0.029)			
2R015507	R13	7A	0.786 (0.021)	0.304 (0.018)	0.000 (0.000)	1.376 (0.039)	0.002 (0.031)	-1.378 (0.046)
2R015508	R13	8	0.953 (0.052)	-0.711 (0.068)	0.183 (0.029)			
2R015509	R13	9A	1.064 (0.038)	0.394 (0.022)	0.000 (0.000)			
2R015510	R13	10	1.770 (0.107)	0.108 (0.034)	0.308 (0.018)			
2R015511	R13	11	0.768 (0.051)	-0.742 (0.103)	0.243 (0.037)			
2R015512	R13	12A	0.842 (0.032)	-0.551 (0.032)	0.000 (0.000)			
2R015513	R13	13	0.895 (0.051)	-0.898 (0.080)	0.197 (0.033)			
2R015514	R13	14A	0.501 (0.022)	0.358 (0.034)	0.000 (0.000)	1.353 (0.081)	0.141 (0.069)	-1.494 (0.093)
2R015515	R13	15	0.809 (0.060)	0.922 (0.049)	0.112 (0.016)			
2R015516	R13	16	0.674 (0.060)	-0.068 (0.121)	0.315 (0.037)			
2R016501	R14	1A	1.001 (0.022)	0.325 (0.023)	0.000 (0.000)	1.564 (0.031)	-1.564 (0.037)	
2R016502	R14	2A	1.009 (0.025)	0.842 (0.021)	0.000 (0.000)	1.242 (0.024)	-1.242 (0.044)	
2R016601	R14	3A	0.578 (0.016)	0.269 (0.029)	0.000 (0.000)	1.343 (0.043)	-1.343 (0.047)	
2R016602	R14	4A	0.379 (0.023)	0.631 (0.055)	0.000 (0.000)	0.790 (0.083)	-0.790 (0.097)	
2R016604	R14	6A	0.567 (0.016)	-0.608 (0.031)	0.000 (0.000)	1.513 (0.058)	-1.513 (0.040)	
2R016605	R14	7A	0.230 (0.009)	1.718 (0.085)	0.000 (0.000)	-2.207 (0.123)	2.207 (0.146)	
2R016701	R14	8A	0.773 (0.017)	0.572 (0.023)	0.000 (0.000)	2.301 (0.044)	-0.763 (0.035)	-1.538 (0.073)

Table E-8
IRT Parameters for the 1998 Reading Items
Reading to Perform a Task Scale, Grade 12

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)
3R016101	R9	1A	0.548 (0.018)	-0.583 (0.030)	0.000 (0.000)	0.073 (0.053)	-0.073 (0.043)
3R016102	R9	2	1.008 (0.063)	-1.628 (0.103)	0.260 (0.043)		
3R016103	R9	3	1.135 (0.073)	-0.417 (0.069)	0.355 (0.029)		
3R016104	R9	4A	0.767 (0.035)	-2.040 (0.076)	0.000 (0.000)		
3R016105	R9	5	1.027 (0.066)	-1.651 (0.106)	0.277 (0.044)		
3R016106	R9	6	0.899 (0.054)	-0.324 (0.069)	0.208 (0.029)		
3R016107	R9	7A	0.619 (0.018)	-0.949 (0.032)	0.000 (0.000)	-0.310 (0.058)	0.310 (0.044)
3R016108	R9	8A	0.369 (0.013)	-0.608 (0.040)	0.000 (0.000)	-0.628 (0.078)	0.628 (0.067)
3R016109	R9	9A	0.406 (0.011)	0.214 (0.041)	0.000 (0.000)	1.953 (0.062)	-1.953 (0.065)
3R013401	R10	1	0.906 (0.055)	-0.152 (0.064)	0.202 (0.026)		
3R013402	R10	2A	0.717 (0.029)	-0.495 (0.035)	0.000 (0.000)		
3R013403	R10	3A	0.464 (0.011)	-0.146 (0.026)	0.000 (0.000)	-2.073 (0.083)	2.073 (0.081)
3R013404	R10	4	0.775 (0.056)	-0.909 (0.127)	0.343 (0.042)		
3R013405	R10	5A	0.953 (0.036)	-0.960 (0.036)	0.000 (0.000)		
3R013406	R10	6A	0.694 (0.029)	0.361 (0.031)	0.000 (0.000)		
3R013407	R10	7A	0.636 (0.028)	-1.120 (0.053)	0.000 (0.000)		
3R013408	R10	8	0.646 (0.045)	-0.355 (0.104)	0.196 (0.035)		
3R013409	R10	9A	0.688 (0.030)	-1.218 (0.054)	0.000 (0.000)		
3R013410	R10	10	0.696 (0.055)	-1.410 (0.178)	0.348 (0.054)		
3R013411	R10	11A	0.560 (0.028)	-1.619 (0.081)	0.000 (0.000)		
3R013412	R10	12A	0.324 (0.025)	-2.605 (0.200)	0.000 (0.000)		
3R013901	R11	1	1.181 (0.088)	0.220 (0.054)	0.355 (0.021)		
3R013902	R11	2A	0.776 (0.030)	-0.977 (0.041)	0.000 (0.000)		
3R013903	R11	3A	0.964 (0.035)	0.381 (0.024)	0.000 (0.000)		
3R013904	R11	4A	0.742 (0.031)	-1.476 (0.055)	0.000 (0.000)		
3R013905	R11	5	1.262 (0.156)	1.890 (0.102)	0.241 (0.010)		
3R013906	R11	6A	0.549 (0.027)	0.727 (0.045)	0.000 (0.000)		
3R013907	R11	7	0.909 (0.061)	0.206 (0.057)	0.210 (0.023)		
3R013908	R11	8A	0.485 (0.025)	0.638 (0.049)	0.000 (0.000)		
3R013909	R11	9	0.783 (0.058)	0.020 (0.080)	0.242 (0.029)		
3R013910	R11	10A	0.968 (0.035)	0.340 (0.024)	0.000 (0.000)		
3R013911	R11	11	0.673 (0.051)	-1.236 (0.165)	0.334 (0.050)		
3R013912	R11	12	0.567 (0.075)	0.967 (0.114)	0.294 (0.031)		
3R013913	R11	13A	0.511 (0.035)	-0.248 (0.061)	0.000 (0.000)		

Table E-8 (continued)
IRT Parameters for the 1998 Reading Items
Reading to Perform a Task Scale, Grade 12

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)
3R013914	R11	14	0.513 (0.074)	0.396 (0.199)	0.428 (0.042)		
3R013915	R11	15A	0.349 (0.018)	2.073 (0.108)	0.000 (0.000)	-3.845 (0.249)	3.845 (0.273)

Table E-9
IRT Parameters for the 1998 Writing Items, Grade 4

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)		d_{j4} (s.e.)		d_{j5} (s.e.)	
1W004002	W3	1	1.004	(0.034)	-0.244	(0.022)	2.429	(0.144)	1.391	(0.059)	-0.087	(0.038)	-1.741	(0.055)	-1.990	(0.085)
1W004102	W4	1	0.974	(0.032)	0.173	(0.021)	2.524	(0.095)	1.283	(0.045)	-0.354	(0.040)	-1.165	(0.056)	-2.287	(0.112)
1W004202	W5	1	1.215	(0.043)	0.049	(0.018)	1.904	(0.071)	1.235	(0.043)	-0.118	(0.034)	-1.039	(0.043)	-1.982	(0.075)
1W004302	W6	1	1.279	(0.044)	-0.051	(0.018)	2.320	(0.095)	1.163	(0.043)	0.086	(0.032)	-1.253	(0.040)	-2.317	(0.082)
1W004402	W7	1	1.228	(0.041)	-0.307	(0.018)	1.971	(0.103)	1.276	(0.055)	0.277	(0.034)	-1.162	(0.035)	-2.362	(0.067)
1W004502	W8	1	1.342	(0.045)	-0.222	(0.018)	1.948	(0.088)	1.202	(0.049)	0.388	(0.032)	-1.263	(0.035)	-2.276	(0.067)
1W004602	W9	1	1.336	(0.045)	-0.503	(0.017)	2.035	(0.118)	1.153	(0.055)	0.269	(0.034)	-1.183	(0.032)	-2.273	(0.054)
1W004702	W10	1	0.908	(0.031)	-0.186	(0.021)	1.749	(0.111)	1.416	(0.071)	0.406	(0.044)	-1.155	(0.046)	-2.416	(0.087)
1W004802	W11	1	0.720	(0.025)	0.192	(0.024)	1.817	(0.101)	1.668	(0.069)	-0.035	(0.052)	-1.210	(0.070)	-2.240	(0.127)
1W004902	W12	1	0.788	(0.024)	0.280	(0.025)	2.065	(0.109)	2.172	(0.069)	-0.071	(0.044)	-1.614	(0.073)	-2.552	(0.167)
1W005002	W13	1	0.969	(0.032)	0.389	(0.021)	2.457	(0.085)	1.605	(0.047)	-0.063	(0.038)	-1.392	(0.062)	-2.607	(0.158)
1W005102	W14	1	1.334	(0.042)	-0.090	(0.018)	2.420	(0.104)	1.480	(0.046)	0.204	(0.029)	-1.560	(0.040)	-2.544	(0.093)
1W005202	W15	1	0.903	(0.030)	0.309	(0.022)	2.317	(0.091)	1.536	(0.053)	0.150	(0.040)	-1.571	(0.066)	-2.433	(0.150)
1W005302	W16	1	1.678	(0.055)	-0.113	(0.016)	2.115	(0.086)	1.602	(0.045)	-0.006	(0.024)	-1.503	(0.036)	-2.208	(0.067)
1W005402	W17	1	1.085	(0.034)	0.057	(0.020)	2.521	(0.105)	1.595	(0.050)	0.058	(0.033)	-1.615	(0.051)	-2.559	(0.114)
1W005502	W18	1	0.850	(0.028)	-0.208	(0.024)	2.374	(0.145)	1.460	(0.072)	0.413	(0.045)	-1.537	(0.054)	-2.709	(0.116)
1W005602	W19	1	0.831	(0.028)	0.176	(0.022)	2.051	(0.086)	1.313	(0.057)	0.365	(0.045)	-1.396	(0.060)	-2.333	(0.127)
1W005702	W20	1	1.098	(0.037)	0.103	(0.020)	1.893	(0.080)	1.426	(0.052)	0.305	(0.036)	-1.529	(0.052)	-2.095	(0.098)
1W005802	W21	1	0.948	(0.031)	0.109	(0.024)	2.189	(0.111)	1.747	(0.064)	0.386	(0.039)	-1.860	(0.063)	-2.462	(0.137)
1W005902	W22	1	0.795	(0.026)	0.281	(0.025)	1.886	(0.110)	2.059	(0.075)	0.477	(0.045)	-1.647	(0.070)	-2.775	(0.186)

Table E-10
IRT Parameters for the 1998 Writing Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)		d_{j4} (s.e.)		d_{j5} (s.e.)	
1W006002	W3	1	0.859	(0.029)	-0.298	(0.021)	2.718	(0.145)	0.996	(0.056)	-0.134	(0.043)	-1.374	(0.051)	-2.206	(0.080)
1W006102	W4	1	1.062	(0.035)	-0.257	(0.019)	2.634	(0.127)	1.089	(0.048)	-0.064	(0.035)	-1.508	(0.045)	-2.151	(0.075)
1W006202	W5	1	0.941	(0.030)	-0.025	(0.020)	2.669	(0.111)	1.070	(0.046)	-0.132	(0.038)	-1.420	(0.051)	-2.187	(0.092)
1W006302	W6	1	1.031	(0.034)	-0.123	(0.018)	1.351	(0.080)	1.434	(0.062)	0.475	(0.039)	-0.898	(0.039)	-2.362	(0.078)
1W006402	W7	1	0.750	(0.025)	-0.343	(0.022)	1.894	(0.114)	1.088	(0.073)	0.401	(0.052)	-1.239	(0.053)	-2.144	(0.083)
1W006502	W8	1	1.065	(0.034)	-0.322	(0.020)	2.283	(0.126)	1.360	(0.061)	0.431	(0.038)	-1.228	(0.038)	-2.846	(0.094)
1W006602	W9	1	1.120	(0.035)	-0.359	(0.018)	2.379	(0.115)	0.940	(0.050)	0.297	(0.036)	-1.461	(0.040)	-2.155	(0.067)
1W006802	W11	1	0.898	(0.029)	-0.237	(0.022)	2.557	(0.144)	1.489	(0.062)	0.099	(0.039)	-1.596	(0.050)	-2.549	(0.099)
1W006902	W12	1	1.048	(0.032)	-0.070	(0.021)	2.440	(0.112)	1.507	(0.054)	0.393	(0.034)	-1.790	(0.051)	-2.551	(0.115)
1W007002	W13	1	0.940	(0.028)	-0.263	(0.022)	2.312	(0.126)	1.475	(0.063)	0.318	(0.038)	-1.838	(0.052)	-2.267	(0.095)
1W007102	W14	1	1.261	(0.039)	-0.122	(0.018)	1.956	(0.086)	1.497	(0.052)	0.417	(0.031)	-1.320	(0.036)	-2.550	(0.087)
1W007202	W15	1	0.730	(0.023)	0.184	(0.025)	2.553	(0.119)	1.682	(0.062)	-0.057	(0.046)	-1.709	(0.073)	-2.469	(0.153)
1W007302	W16	1	0.869	(0.027)	0.048	(0.022)	1.988	(0.099)	1.548	(0.062)	0.402	(0.041)	-1.944	(0.066)	-1.994	(0.117)
1W007402	W17	1	0.994	(0.031)	-0.147	(0.019)	1.920	(0.094)	1.390	(0.057)	0.314	(0.036)	-1.346	(0.043)	-2.279	(0.080)
1W007602	W19	1	1.480	(0.047)	0.009	(0.015)	1.953	(0.060)	1.329	(0.037)	0.041	(0.026)	-1.144	(0.034)	-2.179	(0.067)
1W007702	W20	1	1.309	(0.042)	0.189	(0.017)	2.154	(0.070)	1.405	(0.040)	0.220	(0.029)	-1.366	(0.043)	-2.413	(0.105)
1W007802	W21	1	1.149	(0.037)	0.045	(0.017)	1.694	(0.069)	1.337	(0.047)	0.251	(0.033)	-1.112	(0.039)	-2.171	(0.077)
1W007902	W22	1	0.778	(0.024)	0.036	(0.025)	2.404	(0.131)	1.830	(0.069)	0.156	(0.043)	-2.176	(0.075)	-2.214	(0.134)
1W008002	W23	1	1.203	(0.038)	0.056	(0.018)	2.499	(0.098)	1.373	(0.043)	0.115	(0.030)	-1.479	(0.043)	-2.508	(0.101)
1W008102	W24	1	0.991	(0.032)	0.066	(0.019)	1.886	(0.081)	1.266	(0.053)	0.455	(0.038)	-1.213	(0.044)	-2.394	(0.095)

Table E-11
IRT Parameters for the 1998 Writing Items, Grade 12

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{1j} (s.e.)		d_{2j} (s.e.)		d_{3j} (s.e.)			
1W008302	W3	1	0.558	(0.017)	0.169	(0.030)	0.671	(0.165)	2.533	(0.145)	1.464	(0.072)	-1.106	(0.068)	-3.562	(0.198)
1W008402	W4	1	0.649	(0.021)	-0.236	(0.029)	1.449	(0.165)	1.785	(0.126)	1.393	(0.071)	-0.705	(0.052)	-3.922	(0.164)
1W008502	W5	1	0.711	(0.024)	-0.508	(0.028)	2.267	(0.201)	1.605	(0.106)	0.789	(0.062)	-0.554	(0.047)	-4.107	(0.154)
1W008602	W6	1	0.769	(0.025)	-0.710	(0.027)	3.195	(0.357)	1.616	(0.101)	0.505	(0.052)	-1.500	(0.046)	-3.815	(0.133)
1W008702	W7	1	1.040	(0.033)	-0.467	(0.020)	2.491	(0.162)	1.230	(0.062)	0.269	(0.038)	-1.367	(0.039)	-2.623	(0.075)
1W008902	W9	1	1.250	(0.041)	-0.730	(0.019)	2.347	(0.173)	1.193	(0.067)	0.436	(0.038)	-1.212	(0.031)	-2.764	(0.061)
1W009002	W10	1	1.102	(0.037)	-0.361	(0.019)	1.433	(0.101)	1.524	(0.070)	0.355	(0.038)	-0.964	(0.036)	-2.349	(0.066)
1W009102	W11	1	0.941	(0.029)	-0.263	(0.022)	2.019	(0.125)	1.314	(0.070)	0.586	(0.044)	-1.703	(0.051)	-2.216	(0.086)
1W009202	W12	1	0.980	(0.033)	-0.146	(0.021)	1.891	(0.099)	1.302	(0.064)	0.641	(0.044)	-0.699	(0.039)	-3.135	(0.115)
1W009302	W13	1	0.842	(0.029)	-0.661	(0.022)	1.753	(0.139)	1.041	(0.083)	0.501	(0.053)	-1.134	(0.044)	-2.161	(0.062)
1W009402	W14	1	0.841	(0.029)	0.019	(0.022)	1.844	(0.101)	1.363	(0.069)	0.720	(0.048)	-0.756	(0.046)	-3.171	(0.138)
1W009502	W15	1	0.897	(0.029)	-0.301	(0.022)	1.581	(0.109)	1.234	(0.077)	0.832	(0.050)	-0.963	(0.042)	-2.684	(0.088)
1W009702	W17	1	1.163	(0.038)	-0.121	(0.018)	1.860	(0.083)	1.318	(0.050)	0.165	(0.033)	-1.199	(0.039)	-2.144	(0.069)
1W009802	W18	1	0.830	(0.026)	-0.289	(0.022)	1.927	(0.117)	1.129	(0.072)	0.642	(0.048)	-1.537	(0.051)	-2.162	(0.085)
1W009902	W19	1	0.859	(0.027)	-0.154	(0.021)	1.898	(0.103)	1.290	(0.063)	0.326	(0.043)	-1.671	(0.058)	-1.844	(0.089)
1W010002	W20	1	0.868	(0.028)	-0.355	(0.022)	2.076	(0.122)	1.080	(0.069)	0.624	(0.048)	-1.266	(0.045)	-2.514	(0.085)
1W010102	W21	1	1.210	(0.040)	0.199	(0.017)	2.288	(0.066)	0.924	(0.036)	0.076	(0.033)	-1.224	(0.046)	-2.065	(0.088)
1W010202	W22	1	0.702	(0.023)	-0.175	(0.025)	2.055	(0.129)	1.339	(0.078)	0.445	(0.054)	-1.351	(0.059)	-2.487	(0.108)
1W010302	W23	1	0.880	(0.029)	-0.163	(0.020)	2.088	(0.101)	1.087	(0.058)	0.223	(0.043)	-1.183	(0.048)	-2.215	(0.082)
1W010402	W24	1	0.760	(0.026)	-0.474	(0.022)	1.890	(0.143)	1.272	(0.081)	0.190	(0.052)	-1.235	(0.051)	-2.118	(0.074)

Table E-12
IRT Parameters for the 1998 Civics Items, Grade 4

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
P030001	C3	1	0.884 (0.080)	-0.470 (0.104)	0.279 (0.038)			
P030002	C3	2	0.679 (0.070)	-0.439 (0.141)	0.263 (0.044)			
P030003	C3	3	1.345 (0.118)	0.361 (0.048)	0.234 (0.023)			
P030004	C3	4A	0.581 (0.028)	-0.707 (0.042)	0.000 (0.000)	0.864 (0.075)	-0.864 (0.052)	
P030005	C3	5A	0.452 (0.026)	0.207 (0.042)	0.000 (0.000)	0.499 (0.072)	-0.499 (0.075)	
P030006	C3	6	2.673 (0.231)	0.578 (0.027)	0.248 (0.016)			
P030007	C3	7A	0.531 (0.029)	1.006 (0.049)	0.000 (0.000)	0.771 (0.057)	-0.771 (0.085)	
P030008	C3	8	1.006 (0.122)	0.643 (0.072)	0.269 (0.028)			
P030009	C3	9	0.594 (0.119)	1.680 (0.184)	0.208 (0.030)			
P030010	C3	10A	0.518 (0.029)	1.539 (0.051)	0.000 (0.000)	0.874 (0.064)	0.400 (0.084)	-1.274 (0.178)
P030011	C3	11	0.743 (0.080)	-1.578 (0.219)	0.342 (0.060)			
P030012	C3	12	0.966 (0.144)	1.260 (0.087)	0.183 (0.022)			
P030013	C3	13	1.037 (0.091)	-0.118 (0.076)	0.209 (0.033)			
P030014	C3	14	1.523 (0.203)	1.710 (0.103)	0.145 (0.011)			
P030015	C3	15	0.806 (0.074)	-0.890 (0.132)	0.240 (0.045)			
P040101	C4	1	1.274 (0.090)	-0.315 (0.055)	0.151 (0.027)			
P040102	C4	2A	0.348 (0.033)	0.330 (0.084)	0.000 (0.000)			
P040103	C4	3	0.944 (0.083)	-0.086 (0.080)	0.213 (0.033)			
P040104	C4	4	1.578 (0.173)	0.939 (0.045)	0.220 (0.017)			
P040105	C4	5A	0.483 (0.029)	0.603 (0.044)	0.000 (0.000)	0.242 (0.069)	-0.242 (0.080)	
P040106	C4	6	0.874 (0.092)	0.250 (0.088)	0.244 (0.034)			
P040107	C4	7	1.242 (0.147)	0.811 (0.058)	0.257 (0.024)			
P040108	C4	8	0.826 (0.079)	-0.126 (0.099)	0.235 (0.037)			
P040109	C4	9A	0.587 (0.035)	1.700 (0.084)	0.000 (0.000)	-0.545 (0.078)	0.545 (0.115)	
P040110	C4	10	1.685 (0.214)	1.662 (0.096)	0.244 (0.012)			
P040111	C4	11A	0.490 (0.023)	0.213 (0.037)	0.000 (0.000)	-0.565 (0.081)	0.565 (0.081)	
P040112	C4	12	1.121 (0.150)	1.220 (0.070)	0.163 (0.020)			
P040113	C4	13	1.311 (0.118)	0.266 (0.056)	0.236 (0.027)			
P040114	C4	14	1.257 (0.103)	-0.207 (0.064)	0.208 (0.032)			
P040115	C4	15	1.101 (0.154)	0.945 (0.072)	0.268 (0.026)			
P040201	C5	1	1.957 (0.155)	0.690 (0.029)	0.134 (0.014)			
P040202	C5	2	0.479 (0.060)	-0.379 (0.215)	0.269 (0.052)			
P040203	C5	3A	0.614 (0.025)	1.444 (0.040)	0.000 (0.000)	-0.737 (0.080)	1.404 (0.094)	-0.667 (0.122)
P040204	C5	4	1.145 (0.087)	-0.545 (0.074)	0.223 (0.033)			

Table E-12 (continued)
IRT Parameters for the 1998 Civics Items, Grade 4

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P040205	C5	5	1.321 (0.103)	-0.228 (0.060)	0.239 (0.030)			
P040206	C5	6A	0.474 (0.014)	-0.276 (0.067)	0.000 (0.000)	2.959 (0.1 09)	-2.959 (0.089)	
P040207	C5	7	1.391 (0.155)	0.796 (0.052)	0.276 (0.021)			
P040208	C5	8	0.666 (0.177)	2.318 (0.320)	0.225 (0.024)			
P040209	C5	9A	0.350 (0.027)	1.859 (0.132)	0.000 (0.000)	-0.254 (0.0 99)	0.254 (0.147)	
P040210	C5	10	0.659 (0.066)	-2.391 (0.260)	0.272 (0.062)			
P040211	C5	11	0.989 (0.142)	1.251 (0.082)	0.204 (0.022)			
P040212	C5	12	0.634 (0.167)	2.304 (0.316)	0.214 (0.026)			
P040213	C5	13	2.028 (0.178)	0.417 (0.036)	0.254 (0.021)			
P040214	C5	14	1.623 (0.174)	0.765 (0.046)	0.256 (0.021)			
P040215	C5	15	1.140 (0.109)	0.215 (0.068)	0.243 (0.031)			
P040301	C6	1	0.865 (0.084)	-0.152 (0.100)	0.264 (0.038)			
P040302	C6	2	0.613 (0.061)	-0.695 (0.158)	0.232 (0.046)			
P040303	C6	3	0.957 (0.137)	1.028 (0.080)	0.259 (0.026)			
P040304	C6	4A	0.643 (0.035)	0.918 (0.042)	0.000 (0.000)	0.099 (0.0 53)	-0.099 (0.070)	
P040305	C6	5	1.008 (0.111)	0.458 (0.075)	0.274 (0.030)			
P040306	C6	6	0.691 (0.077)	-0.396 (0.153)	0.317 (0.046)			
P040307	C6	7	0.782 (0.167)	1.881 (0.189)	0.166 (0.022)			
P040308	C6	8	1.017 (0.097)	0.013 (0.082)	0.276 (0.034)			
P040309	C6	9	0.725 (0.066)	-0.463 (0.117)	0.202 (0.040)			
P040310	C6	10A	0.551 (0.033)	1.441 (0.062)	0.000 (0.000)	0.796 (0.0 56)	-0.796 (0.103)	
P040311	C6	11A	0.424 (0.033)	1.736 (0.109)	0.000 (0.000)	0.355 (0.0 77)	-0.355 (0.130)	
P040312	C6	12	0.588 (0.057)	-2.295 (0.250)	0.240 (0.057)			
P040313	C6	13	1.587 (0.179)	1.499 (0.075)	0.182 (0.012)			
P040314	C6	14	1.542 (0.119)	-0.440 (0.058)	0.217 (0.032)			
P040315	C6	15	0.880 (0.078)	-0.266 (0.093)	0.208 (0.037)			
P040401	C7	1	0.672 (0.066)	-0.045 (0.108)	0.198 (0.036)			
P040402	C7	2A	0.464 (0.027)	1.161 (0.062)	0.000 (0.000)	-0.245 (0.0 74)	0.245 (0.096)	
P040403	C7	3	0.499 (0.072)	0.388 (0.176)	0.257 (0.046)			
P040404	C7	4A	0.277 (0.014)	-0.368 (0.049)	0.000 (0.000)	1.508 (0.1 47)	-1.916 (0.142)	0.408 (0.146)
P040405	C7	5	0.935 (0.075)	-0.706 (0.096)	0.204 (0.037)			
P040406	C7	6	0.612 (0.119)	1.370 (0.150)	0.273 (0.035)			
P040407	C7	7	1.342 (0.186)	1.154 (0.061)	0.258 (0.019)			
P040408	C7	8	1.189 (0.112)	0.004 (0.075)	0.325 (0.033)			
P040409	C7	9A	0.623 (0.039)	1.684 (0.066)	0.000 (0.000)	0.707 (0.0 51)	-0.707 (0.109)	

Table E-12 (continued)
IRT Parameters for the 1998 Civics Items, Grade 4

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)	
P040410	C7	10	0.807	(0.085)	-0.370	(0.132)	0.322	(0.044)						
P040411	C7	11	0.898	(0.108)	0.727	(0.078)	0.240	(0.029)						
P040412	C7	12A	0.432	(0.020)	-0.539	(0.043)	0.000	(0.000)	1.401	(0.132)	0.189	(0.085)	-1.590	(0.082)
P040413	C7	13	0.752	(0.102)	0.876	(0.097)	0.220	(0.032)						
P040414	C7	14	0.998	(0.088)	-0.009	(0.076)	0.214	(0.033)						
P040415	C7	15	0.790	(0.078)	-0.563	(0.131)	0.260	(0.044)						
P040501	C8	1	1.491	(0.213)	1.193	(0.071)	0.400	(0.018)						
P040502	C8	2A	0.580	(0.026)	0.412	(0.028)	0.000	(0.000)	0.754	(0.067)	0.364	(0.062)	-1.117	(0.079)
P040503	C8	3	1.238	(0.110)	0.017	(0.065)	0.283	(0.031)						
P040504	C8	4	0.806	(0.104)	0.890	(0.088)	0.223	(0.029)						
P040505	C8	5	0.827	(0.152)	1.561	(0.130)	0.226	(0.024)						
P040507	C8	7A	0.444	(0.028)	2.758	(0.094)	0.000	(0.000)	1.702	(0.068)	-1.702	(0.241)		
P040508	C8	8	0.486	(0.115)	2.108	(0.287)	0.230	(0.035)						
P040509	C8	9	0.930	(0.094)	0.019	(0.093)	0.284	(0.036)						
P040510	C8	10A	0.316	(0.017)	-0.278	(0.057)	0.000	(0.000)	-1.080	(0.128)	1.080	(0.120)		
P040511	C8	11	0.808	(0.084)	0.164	(0.096)	0.234	(0.036)						
P040512	C8	12	0.651	(0.088)	-0.017	(0.170)	0.328	(0.049)						
P040513	C8	13	1.637	(0.168)	0.794	(0.043)	0.201	(0.019)						
P040514	C8	14	1.059	(0.134)	0.822	(0.072)	0.256	(0.028)						
P040515	C8	15	0.746	(0.074)	-0.658	(0.139)	0.253	(0.046)						

Table E-13
IRT Parameters for the 1998 Civics Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
P040701	C3	1	1.394 (0.169)	1.414 (0.073)	0.255 (0.014)			
P040702	C3	2	0.512 (0.052)	-0.110 (0.147)	0.182 (0.041)			
P040703	C3	3	0.700 (0.038)	1.424 (0.051)	0.000 (0.000)	0.634 (0.045)	-0.634 (0.087)	
P040704	C3	4	1.945 (0.179)	0.416 (0.041)	0.333 (0.020)			
P040705	C3	5	0.928 (0.050)	1.438 (0.048)	0.000 (0.000)	0.019 (0.044)	-0.019 (0.073)	
P040706	C3	6	0.956 (0.181)	1.408 (0.107)	0.316 (0.023)			
P040707	C3	7	1.720 (0.149)	1.112 (0.041)	0.187 (0.013)			
P040708	C3	8	0.736 (0.037)	1.054 (0.039)	0.000 (0.000)	0.576 (0.043)	-0.576 (0.067)	
P040709	C3	9	1.095 (0.084)	-0.619 (0.082)	0.230 (0.037)			
P040710	C3	10	0.550 (0.062)	0.419 (0.126)	0.178 (0.037)			
P040711	C3	11	0.911 (0.075)	0.085 (0.072)	0.169 (0.029)			
P040712	C3	12	0.608 (0.079)	0.370 (0.143)	0.261 (0.042)			
P040713	C3	13	1.205 (0.106)	-0.587 (0.091)	0.337 (0.040)			
P040714	C3	14	1.049 (0.101)	-0.101 (0.093)	0.334 (0.037)			
P040715	C3	15	0.702 (0.035)	0.733 (0.034)	0.000 (0.000)	0.370 (0.047)	-0.370 (0.060)	
P040716	C3	16	1.225 (0.188)	1.732 (0.117)	0.203 (0.014)			
P040717	C3	17	0.965 (0.164)	1.111 (0.089)	0.328 (0.027)			
P040718	C3	18	0.652 (0.085)	0.698 (0.115)	0.231 (0.035)			
P040719	C3	19	1.119 (0.098)	-0.506 (0.093)	0.296 (0.040)			
P040801	C4	1	1.562 (0.132)	0.149 (0.050)	0.293 (0.024)			
P040802	C4	2	1.937 (0.151)	0.269 (0.036)	0.225 (0.020)			
P040803	C4	3	0.648 (0.031)	0.401 (0.032)	0.000 (0.000)	0.525 (0.051)	-0.525 (0.056)	
P040804	C4	4	0.543 (0.053)	-1.719 (0.248)	0.285 (0.061)			
P040805	C4	5	1.385 (0.154)	1.038 (0.048)	0.193 (0.016)			
P040806	C4	6	1.511 (0.143)	1.174 (0.044)	0.105 (0.012)			
P040807	C4	7	0.448 (0.019)	0.822 (0.042)	0.000 (0.000)	1.650 (0.073)	-0.921 (0.087)	-0.729 (0.129)
P040808	C4	8	0.710 (0.233)	2.960 (0.572)	0.183 (0.017)			
P040809	C4	9	1.386 (0.171)	1.052 (0.052)	0.237 (0.018)			
P040810	C4	10	1.140 (0.100)	0.148 (0.065)	0.250 (0.028)			
P040811	C4	11	1.393 (0.152)	0.872 (0.048)	0.239 (0.019)			
P040812	C4	12	0.826 (0.127)	1.080 (0.091)	0.270 (0.028)			
P040813	C4	13	0.689 (0.037)	1.588 (0.048)	0.000 (0.000)	0.647 (0.049)	0.051 (0.077)	-0.698 (0.153)
P040814	C4	14	1.323 (0.145)	1.198 (0.052)	0.124 (0.014)			
P040815	C4	15	1.624 (0.160)	0.910 (0.039)	0.173 (0.016)			

Table E-13 (continued)
IRT Parameters for the 1998 Civics Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P040816	C4	16	0.877 (0.110)	0.948 (0.073)	0.184 (0.025)			
P040817	C4	17	1.072 (0.093)	-0.198 (0.082)	0.274 (0.034)			
P040818	C4	18	1.491 (0.132)	0.397 (0.048)	0.260 (0.022)			
P040819	C4	19	1.896 (0.150)	1.192 (0.042)	0.202 (0.012)			
P040901	C5	1	0.699 (0.065)	-1.133 (0.170)	0.279 (0.052)			
P040902	C5	2	0.887 (0.107)	1.225 (0.075)	0.125 (0.019)			
P040903	C5	3	0.606 (0.028)	0.307 (0.036)	0.000 (0.000)	0.905 (0.056)	-0.905 (0.060)	
P040904	C5	4	0.828 (0.088)	0.417 (0.088)	0.237 (0.032)			
P040906	C5	6	0.704 (0.035)	1.355 (0.051)	0.000 (0.000)	-0.405 (0.061)	0.405 (0.084)	
P040907	C5	7	0.739 (0.097)	0.941 (0.092)	0.205 (0.029)			
P040908	C5	8	0.891 (0.073)	-0.142 (0.082)	0.187 (0.033)			
P040909	C5	9	1.547 (0.118)	-0.277 (0.055)	0.257 (0.029)			
P040910	C5	10	0.535 (0.028)	1.386 (0.054)	0.000 (0.000)	1.080 (0.056)	-1.080 (0.103)	
P040911	C5	11	0.317 (0.061)	1.629 (0.312)	0.254 (0.044)			
P040912	C5	12	1.375 (0.179)	1.519 (0.085)	0.250 (0.014)			
P040913	C5	13	0.894 (0.041)	0.456 (0.026)	0.000 (0.000)	0.455 (0.039)	-0.455 (0.044)	
P040914	C5	14	0.995 (0.095)	0.502 (0.064)	0.179 (0.026)			
P040915	C5	15	1.649 (0.195)	1.566 (0.084)	0.291 (0.013)			
P040916	C5	16	1.484 (0.167)	1.112 (0.053)	0.261 (0.017)			
P040917	C5	17	0.765 (0.092)	0.911 (0.083)	0.165 (0.027)			
P040918	C5	18	1.090 (0.109)	0.139 (0.082)	0.307 (0.033)			
P040919	C5	19	1.097 (0.113)	0.442 (0.069)	0.245 (0.029)			
P041001	C6	1	0.674 (0.075)	0.116 (0.128)	0.259 (0.040)			
P041002	C6	2	0.822 (0.139)	1.205 (0.105)	0.332 (0.027)			
P041003	C6	3	1.150 (0.062)	0.868 (0.035)	0.000 (0.000)			
P041004	C6	4	0.901 (0.080)	-0.884 (0.128)	0.312 (0.046)			
P041005	C6	5	0.873 (0.065)	-0.167 (0.074)	0.154 (0.029)			
P041006	C6	6	1.464 (0.193)	0.936 (0.056)	0.373 (0.020)			
P041007	C6	7	0.768 (0.038)	0.971 (0.035)	0.000 (0.000)	0.200 (0.044)	-0.200 (0.060)	
P041008	C6	8	0.731 (0.065)	-0.185 (0.105)	0.201 (0.037)			
P041009	C6	9	1.283 (0.112)	0.215 (0.058)	0.259 (0.027)			
P041010	C6	10	0.724 (0.105)	1.176 (0.100)	0.219 (0.027)			
P041011	C6	11	1.437 (0.140)	0.269 (0.060)	0.356 (0.026)			
P041012	C6	12	1.415 (0.114)	-0.013 (0.056)	0.287 (0.027)			
P041013	C6	13	0.338 (0.015)	0.533 (0.063)	0.000 (0.000)	1.828 (0.094)	-1.828 (0.110)	

Table E-13 (continued)
IRT Parameters for the 1998 Civics Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P041014	C6	14	0.330 (0.018)	-1.010 (0.071)	0.000 (0.000)	1.336 (0.1 25)	-1.336 (0.089)	
P041015	C6	15	1.298 (0.105)	0.392 (0.047)	0.178 (0.022)			
P041016	C6	16	1.364 (0.137)	0.748 (0.048)	0.229 (0.020)			
P041017	C6	17	1.886 (0.190)	0.771 (0.042)	0.344 (0.018)			
P041018	C6	18	1.377 (0.119)	-0.018 (0.063)	0.311 (0.029)			
P041019	C6	19	0.571 (0.083)	0.884 (0.130)	0.220 (0.037)			
P041101	C7	1	0.402 (0.054)	-0.866 (0.342)	0.323 (0.066)			
P041102	C7	2	0.643 (0.032)	0.743 (0.035)	0.000 (0.000)	0.171 (0.0 52)	-0.171 (0.063)	
P041103	C7	3	0.985 (0.080)	0.420 (0.055)	0.141 (0.022)			
P041104	C7	4	1.218 (0.169)	1.255 (0.064)	0.213 (0.018)			
P041105	C7	5	0.978 (0.148)	1.222 (0.080)	0.253 (0.023)			
P041106	C7	6	0.222 (0.008)	1.775 (0.065)	0.000 (0.000)	-0.287 (0.1 82)	4.257 (0.178)	-3.969 (0.268)
P041107	C7	7	1.293 (0.129)	0.084 (0.075)	0.408 (0.029)			
P041108	C7	8	1.141 (0.088)	-0.164 (0.066)	0.218 (0.029)			
P041109	C7	9	1.887 (0.261)	1.899 (0.121)	0.265 (0.011)			
P041110	C7	10	0.979 (0.142)	1.211 (0.078)	0.236 (0.022)			
P041111	C7	11	0.834 (0.036)	1.003 (0.032)	0.000 (0.000)	-0.273 (0.0 49)	0.273 (0.060)	
P041112	C7	12	0.442 (0.051)	-1.348 (0.302)	0.293 (0.064)			
P041113	C7	13	1.075 (0.141)	0.644 (0.082)	0.402 (0.027)			
P041114	C7	14	1.356 (0.235)	2.124 (0.179)	0.158 (0.011)			
P041115	C7	15	1.111 (0.189)	1.309 (0.087)	0.327 (0.021)			
P041116	C7	16	0.795 (0.043)	1.143 (0.040)	0.000 (0.000)	0.187 (0.0 46)	-0.187 (0.066)	
P041117	C7	17	0.947 (0.083)	-1.046 (0.126)	0.280 (0.045)			
P041118	C7	18	1.591 (0.158)	1.182 (0.052)	0.245 (0.015)			
P041119	C7	19	0.992 (0.104)	0.183 (0.088)	0.303 (0.033)			
P041201	C8	1	0.709 (0.074)	0.040 (0.117)	0.250 (0.038)			
P041202	C8	2	0.546 (0.028)	0.453 (0.037)	0.000 (0.000)	0.393 (0.0 59)	-0.393 (0.066)	
P041203	C8	3	0.450 (0.045)	-2.227 (0.296)	0.268 (0.062)			
P041205	C8	5	0.226 (0.016)	-2.490 (0.184)	0.000 (0.000)	-0.782 (0.2 15)	0.782 (0.150)	
P041206	C8	6	0.768 (0.064)	-0.097 (0.088)	0.173 (0.032)			
P041207	C8	7	0.972 (0.123)	0.624 (0.085)	0.360 (0.028)			
P041208	C8	8	0.850 (0.094)	0.401 (0.091)	0.279 (0.032)			
P041209	C8	9	1.280 (0.147)	0.766 (0.057)	0.305 (0.022)			

Table E-13 (continued)
IRT Parameters for the 1998 Civics Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P041210	C8	10	0.512 (0.071)	0.472 (0.167)	0.249 (0.044)			
P041211	C8	11	1.185 (0.163)	1.088 (0.064)	0.274 (0.021)			
P041212	C8	12	0.960 (0.106)	0.354 (0.087)	0.327 (0.031)			
P041213	C8	13	0.557 (0.028)	1.314 (0.043)	0.000 (0.000)	0.487 (0.0 61)	0.375 (0.078)	-0.862 (0.128)
P041214	C8	14	1.620 (0.181)	1.411 (0.071)	0.334 (0.014)			
P041215	C8	15	1.040 (0.083)	-0.367 (0.081)	0.230 (0.034)			
P041216	C8	16	1.959 (0.177)	0.735 (0.034)	0.212 (0.016)			
P041217	C8	17	0.675 (0.139)	1.635 (0.158)	0.256 (0.029)			
P041218	C8	18	2.069 (0.209)	0.610 (0.040)	0.339 (0.019)			
P041219	C8	19	0.881 (0.073)	-0.708 (0.109)	0.238 (0.041)			
P041301	C9	1	0.975 (0.126)	0.602 (0.090)	0.371 (0.030)			
P041302	C9	2	1.170 (0.109)	0.408 (0.060)	0.246 (0.026)			
P041303	C9	3	1.460 (0.133)	0.285 (0.054)	0.320 (0.025)			
P041304	C9	4	1.637 (0.133)	-0.436 (0.061)	0.328 (0.032)			
P041305	C9	5	1.115 (0.161)	0.901 (0.077)	0.392 (0.025)			
P041306	C9	6	1.186 (0.093)	-0.702 (0.082)	0.266 (0.038)			
P041307	C9	7	0.823 (0.035)	1.018 (0.028)	0.000 (0.000)	0.851 (0.0 39)	-0.612 (0.063)	-0.239 (0.088)
P041308	C9	8	1.699 (0.166)	1.535 (0.067)	0.216 (0.011)			
P041309	C9	9	0.522 (0.026)	0.808 (0.044)	0.000 (0.000)	0.881 (0.0 58)	-0.881 (0.078)	
P041310	C9	10	1.666 (0.180)	0.795 (0.045)	0.300 (0.019)			
P041311	C9	11	0.301 (0.062)	1.997 (0.381)	0.315 (0.041)			
P041312	C9	12	1.283 (0.158)	1.441 (0.072)	0.183 (0.014)			
P041313	C9	13	1.146 (0.104)	-1.226 (0.123)	0.342 (0.049)			
P041314	C9	14	1.370 (0.142)	0.816 (0.049)	0.235 (0.020)			
P041315	C9	15	0.560 (0.028)	0.017 (0.035)	0.000 (0.000)	0.524 (0.0 62)	-0.524 (0.059)	
P041316	C9	16	1.223 (0.141)	0.746 (0.061)	0.291 (0.024)			
P041317	C9	17	1.819 (0.164)	0.869 (0.037)	0.214 (0.015)			
P041318	C9	18	0.841 (0.100)	0.574 (0.092)	0.278 (0.032)			
P041319	C9	19	0.730 (0.098)	0.607 (0.116)	0.310 (0.036)			
P040601	C10	1	0.564 (0.069)	0.189 (0.152)	0.247 (0.043)			
P040602	C10	2	0.533 (0.028)	0.361 (0.036)	0.000 (0.000)	0.374 (0.0 61)	-0.374 (0.066)	
P040603	C10	3	2.097 (0.150)	1.369 (0.044)	0.150 (0.010)			
P040604	C10	4	0.853 (0.134)	1.111 (0.094)	0.299 (0.027)			
P040605	C10	5	0.939 (0.332)	2.533 (0.464)	0.290 (0.016)			
P040606	C10	6	1.385 (0.291)	2.065 (0.207)	0.296 (0.012)			

Table E-13 (continued)
IRT Parameters for the 1998 Civics Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P040607	C10	7	0.706 (0.062)	-0.091 (0.100)	0.176 (0.035)			
P040608	C10	8	0.567 (0.026)	0.700 (0.030)	0.000 (0.000)	0.310 (0.061)	0.021 (0.073)	-0.331 (0.085)
P040609	C10	9	0.972 (0.242)	1.895 (0.196)	0.285 (0.019)			
P040610	C10	10	1.624 (0.183)	1.697 (0.087)	0.180 (0.011)			
P040611	C10	11	0.631 (0.063)	-0.457 (0.152)	0.257 (0.046)			
P040612	C10	12	1.160 (0.102)	-0.818 (0.103)	0.343 (0.043)			
P040613	C10	13	0.667 (0.035)	1.103 (0.045)	0.000 (0.000)	0.076 (0.051)	-0.076 (0.072)	
P040614	C10	14	1.116 (0.107)	0.484 (0.060)	0.229 (0.026)			
P040615	C10	15	1.045 (0.083)	-0.559 (0.088)	0.255 (0.037)			
P040616	C10	16	1.297 (0.100)	-0.402 (0.068)	0.243 (0.033)			
P040617	C10	17	0.766 (0.101)	0.739 (0.098)	0.260 (0.033)			
P040618	C10	18	0.980 (0.103)	0.658 (0.065)	0.188 (0.026)			

Table E-14
IRT Parameters for the 1998 Civics Items, Grade 12

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P041501	C3	1	0.833 (0.087)	0.354 (0.089)	0.243 (0.032)			
P041502	C3	2	0.726 (0.096)	0.721 (0.105)	0.278 (0.033)			
P041503	C3	3A	0.792 (0.038)	0.849 (0.033)	0.000 (0.000)	0.203 (0.044)	-0.203 (0.057)	
P041504	C3	4	1.945 (0.167)	0.502 (0.035)	0.229 (0.018)			
P041505	C3	5A	0.582 (0.028)	0.200 (0.035)	0.000 (0.000)	0.664 (0.058)	-0.664 (0.060)	
P041506	C3	6	1.377 (0.136)	0.392 (0.058)	0.324 (0.024)			
P041507	C3	7	1.125 (0.087)	-0.510 (0.077)	0.252 (0.033)			
P041508	C3	8	1.181 (0.126)	0.492 (0.066)	0.322 (0.026)			
P041509	C3	9A	0.647 (0.029)	0.786 (0.030)	0.000 (0.000)	0.785 (0.052)	-0.479 (0.068)	-0.306 (0.088)
P041510	C3	10	1.119 (0.122)	0.969 (0.057)	0.194 (0.019)			
P041511	C3	11A	0.726 (0.028)	0.073 (0.027)	0.000 (0.000)	-0.210 (0.054)	0.210 (0.053)	
P041512	C3	12	1.182 (0.095)	-0.428 (0.077)	0.275 (0.034)			
P041513	C3	13	1.008 (0.101)	0.275 (0.079)	0.303 (0.029)			
P041514	C3	14	1.065 (0.102)	0.797 (0.055)	0.165 (0.020)			
P041515	C3	15	2.040 (0.183)	0.619 (0.034)	0.225 (0.016)			
P041516	C3	16	1.258 (0.145)	0.689 (0.061)	0.317 (0.023)			
P041517	C3	17	1.115 (0.129)	0.202 (0.093)	0.430 (0.031)			
P041518	C3	18	1.736 (0.138)	0.566 (0.034)	0.132 (0.016)			
P041519	C3	19	1.938 (0.160)	-0.074 (0.046)	0.293 (0.025)			
P041601	C4	1	0.816 (0.070)	-1.108 (0.136)	0.261 (0.046)			
P041602	C4	2	0.806 (0.075)	-0.591 (0.127)	0.276 (0.044)			
P041603	C4	3	2.163 (0.183)	0.717 (0.031)	0.222 (0.015)			
P041604	C4	4	1.352 (0.131)	0.399 (0.058)	0.307 (0.025)			
P041605	C4	5	1.206 (0.103)	0.035 (0.066)	0.278 (0.029)			
P041606	C4	6A	0.541 (0.027)	0.175 (0.035)	0.000 (0.000)	0.175 (0.064)	-0.175 (0.065)	
P041607	C4	7	0.706 (0.097)	0.835 (0.108)	0.268 (0.033)			
P041608	C4	8	1.786 (0.155)	1.089 (0.042)	0.235 (0.014)			
P041609	C4	9	0.682 (0.071)	0.079 (0.118)	0.243 (0.038)			
P041610	C4	10	1.835 (0.150)	0.954 (0.035)	0.156 (0.013)			
P041611	C4	11	0.829 (0.088)	-0.071 (0.119)	0.354 (0.038)			
P041612	C4	12	1.369 (0.167)	1.019 (0.055)	0.282 (0.019)			
P041613	C4	13A	0.418 (0.021)	0.135 (0.049)	0.000 (0.000)	1.175 (0.081)	-1.175 (0.082)	
P041614	C4	14A	0.503 (0.025)	-0.816 (0.051)	0.000 (0.000)	0.257 (0.086)	-0.257 (0.064)	
P041615	C4	15	0.716 (0.096)	0.648 (0.115)	0.299 (0.035)			

Table E-14 (continued)
IRT Parameters for the 1998 Civics Items, Grade 12

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d₁ (s.e.)	d₂ (s.e.)	d₃ (s.e.)
P041616	C4	16	1.408 (0.241)	2.205 (0.176)	0.208 (0.011)			
P041617	C4	17	1.086 (0.101)	0.015 (0.080)	0.305 (0.032)			
P041618	C4	18	1.533 (0.149)	0.536 (0.048)	0.273 (0.022)			
P041619	C4	19	0.760 (0.094)	0.561 (0.104)	0.252 (0.035)			
P041701	C5	1	0.900 (0.083)	-0.304 (0.103)	0.264 (0.039)			
P041702	C5	2	0.943 (0.086)	0.274 (0.072)	0.204 (0.029)			
P041703	C5	3	1.224 (0.156)	0.960 (0.060)	0.264 (0.021)			
P041704	C5	4	2.180 (0.206)	1.328 (0.057)	0.375 (0.013)			
P041705	C5	5A	0.707 (0.041)	-0.106 (0.045)	0.000 (0.000)			
P041706	C5	6A	0.643 (0.032)	1.027 (0.035)	0.000 (0.000)	0.608 (0.054)	-0.076 (0.071)	-0.532 (0.101)
P041707	C5	7	1.559 (0.174)	1.069 (0.051)	0.275 (0.017)			
P041708	C5	8	1.069 (0.125)	0.780 (0.065)	0.249 (0.024)			
P041709	C5	9	1.509 (0.158)	0.226 (0.065)	0.400 (0.027)			
P041710	C5	10	0.968 (0.087)	-0.530 (0.105)	0.290 (0.041)			
P041711	C5	11A	0.712 (0.038)	1.046 (0.042)	0.000 (0.000)	0.175 (0.050)	-0.175 (0.070)	
P041712	C5	12	0.441 (0.060)	0.155 (0.214)	0.250 (0.050)			
P041713	C5	13A	0.617 (0.026)	0.120 (0.032)	0.000 (0.000)	-0.340 (0.066)	0.340 (0.065)	
P041714	C5	14	0.844 (0.137)	0.847 (0.109)	0.362 (0.033)			
P041715	C5	15	1.217 (0.137)	0.595 (0.063)	0.283 (0.025)			
P041716	C5	16	1.000 (0.103)	0.423 (0.073)	0.221 (0.029)			
P041717	C5	17	1.343 (0.116)	0.126 (0.057)	0.204 (0.027)			
P041718	C5	18	1.150 (0.115)	0.271 (0.070)	0.249 (0.029)			
P041719	C5	19	1.278 (0.123)	0.381 (0.058)	0.213 (0.025)			
P041801	C6	1	0.791 (0.091)	0.349 (0.105)	0.276 (0.036)			
P041802	C6	2	0.418 (0.044)	-2.017 (0.297)	0.271 (0.060)			
P041803	C6	3	0.829 (0.084)	-0.025 (0.111)	0.291 (0.039)			
P041804	C6	4A	0.592 (0.029)	0.058 (0.033)	0.000 (0.000)	0.277 (0.060)	-0.277 (0.058)	
P041805	C6	5	0.628 (0.057)	-2.018 (0.219)	0.278 (0.060)			
P041806	C6	6A	0.506 (0.027)	0.417 (0.038)	0.000 (0.000)	0.214 (0.066)	-0.214 (0.071)	
P041807	C6	7	0.864 (0.076)	-1.019 (0.137)	0.287 (0.048)			
P041808	C6	8	1.609 (0.175)	1.604 (0.078)	0.258 (0.013)			
P041809	C6	9	0.818 (0.102)	0.693 (0.093)	0.277 (0.031)			
P041811	C6	11	1.287 (0.143)	0.645 (0.060)	0.325 (0.024)			
P041812	C6	12	1.277 (0.118)	0.633 (0.048)	0.177 (0.021)			
P041813	C6	13	1.366 (0.150)	0.712 (0.054)	0.307 (0.022)			

Table E-14 (continued)
IRT Parameters for the 1998 Civics Items, Grade 12

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{1j} (s.e.)		d_{2j} (s.e.)		d_{3j} (s.e.)	
P041814	C6	14	1.052	(0.169)	1.465	(0.091)	0.237	(0.020)						
P041815	C6	15A	0.926	(0.041)	0.829	(0.027)	0.000	(0.000)	0.038	(0.040)	-0.038	(0.050)		
P041816	C6	16	0.981	(0.124)	0.557	(0.091)	0.378	(0.030)						
P041817	C6	17	0.902	(0.088)	0.094	(0.093)	0.257	(0.035)						
P041818	C6	18	1.454	(0.160)	0.238	(0.073)	0.447	(0.028)						
P041819	C6	19	1.175	(0.121)	0.878	(0.052)	0.179	(0.020)						
P041901	C7	1	0.659	(0.066)	-1.283	(0.202)	0.313	(0.058)						
P041902	C7	2A	0.584	(0.023)	0.687	(0.035)	0.000	(0.000)	-0.854	(0.074)	0.854	(0.081)		
P041903	C7	3	1.113	(0.148)	0.846	(0.074)	0.351	(0.024)						
P041904	C7	4	1.569	(0.154)	0.435	(0.051)	0.316	(0.023)						
P041905	C7	5A	0.522	(0.019)	-0.383	(0.040)	0.000	(0.000)	3.043	(0.131)	-0.905	(0.062)	-2.138	(0.092)
P041906	C7	6	1.262	(0.185)	1.175	(0.071)	0.324	(0.020)						
P041907	C7	7A	0.853	(0.038)	1.152	(0.030)	0.000	(0.000)	0.193	(0.046)	0.173	(0.063)	-0.366	(0.085)
P041908	C7	8	1.160	(0.119)	0.467	(0.066)	0.287	(0.026)						
P041909	C7	9	1.164	(0.160)	1.238	(0.070)	0.229	(0.019)						
P041910	C7	10	0.860	(0.113)	0.731	(0.094)	0.312	(0.030)						
P041911	C7	11	0.890	(0.110)	0.832	(0.080)	0.233	(0.028)						
P041912	C7	12A	0.440	(0.025)	1.129	(0.060)	0.000	(0.000)	1.003	(0.070)	-1.003	(0.105)		
P041913	C7	13	1.720	(0.165)	0.984	(0.042)	0.214	(0.015)						
P041914	C7	14	0.834	(0.082)	-0.440	(0.125)	0.299	(0.044)						
P041915	C7	15	1.507	(0.191)	0.895	(0.055)	0.338	(0.020)						
P041916	C7	16	1.072	(0.128)	0.959	(0.065)	0.204	(0.022)						
P041917	C7	17	1.810	(0.172)	0.541	(0.041)	0.242	(0.020)						
P041918	C7	18	0.857	(0.110)	0.306	(0.119)	0.367	(0.038)						
P041919	C7	19	1.419	(0.136)	-0.012	(0.069)	0.337	(0.032)						
P042001	C8	1	1.118	(0.226)	1.319	(0.107)	0.468	(0.021)						
P042002	C8	2A	0.838	(0.038)	0.382	(0.026)	0.000	(0.000)	0.290	(0.042)	-0.290	(0.046)		
P042003	C8	3	0.940	(0.111)	0.122	(0.111)	0.394	(0.037)						
P042004	C8	4	1.195	(0.119)	0.320	(0.067)	0.298	(0.028)						
P042005	C8	5	0.202	(0.043)	2.503	(0.599)	0.328	(0.039)						
P042006	C8	6	1.590	(0.153)	0.375	(0.050)	0.316	(0.023)						
P042007	C8	7	2.079	(0.194)	0.615	(0.034)	0.246	(0.017)						
P042008	C8	8A	0.825	(0.038)	0.380	(0.027)	0.000	(0.000)	0.425	(0.042)	-0.425	(0.046)		
P042009	C8	9A	0.589	(0.024)	0.188	(0.031)	0.000	(0.000)	-0.415	(0.066)	0.415	(0.066)		
P042010	C8	10	0.554	(0.057)	-1.394	(0.240)	0.302	(0.061)						

Table E-14 (continued)
IRT Parameters for the 1998 Civics Items, Grade 12

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
P042011	C8	11	0.629 (0.128)	1.454 (0.156)	0.306 (0.033)			
P042012	C8	12A	0.612 (0.026)	-0.702 (0.041)	0.000 (0.000)	-0.203 (0.075)	0.203 (0.060)	
P042013	C8	13	2.380 (0.166)	1.190 (0.038)	0.211 (0.012)			
P042014	C8	14	0.476 (0.070)	0.284 (0.213)	0.286 (0.051)			
P042015	C8	15	2.674 (0.177)	1.323 (0.040)	0.193 (0.011)			
P042016	C8	16	1.343 (0.180)	1.211 (0.063)	0.234 (0.018)			
P042017	C8	17	1.791 (0.187)	1.075 (0.052)	0.350 (0.016)			
P042018	C8	18	1.460 (0.185)	1.226 (0.065)	0.287 (0.017)			
P042019	C8	19	0.869 (0.158)	1.430 (0.118)	0.275 (0.025)			
P042101	C9	1	1.073 (0.133)	0.404 (0.090)	0.420 (0.030)			
P042102	C9	2A	0.952 (0.041)	0.892 (0.029)	0.000 (0.000)	0.819 (0.035)	-0.819 (0.056)	
P042103	C9	3A	0.635 (0.028)	1.693 (0.041)	0.000 (0.000)	1.639 (0.049)	-0.333 (0.080)	-1.305 (0.224)
P042104	C9	4	0.869 (0.083)	-1.526 (0.177)	0.335 (0.059)			
P042105	C9	5	1.207 (0.130)	1.056 (0.051)	0.133 (0.017)			
P042106	C9	6	2.823 (0.258)	0.496 (0.029)	0.314 (0.017)			
P042107	C9	7	1.344 (0.166)	0.610 (0.066)	0.401 (0.025)			
P042108	C9	8	1.301 (0.131)	0.011 (0.079)	0.417 (0.031)			
P042109	C9	9	0.996 (0.124)	0.844 (0.071)	0.261 (0.025)			
P042110	C9	10A	0.458 (0.022)	0.139 (0.046)	0.000 (0.000)	1.183 (0.075)	-1.183 (0.076)	
P042111	C9	11	1.239 (0.132)	0.623 (0.058)	0.276 (0.024)			
P042112	C9	12	1.833 (0.194)	1.426 (0.068)	0.346 (0.013)			
P042113	C9	13	1.476 (0.159)	0.294 (0.065)	0.410 (0.027)			
P042114	C9	14	0.636 (0.120)	1.654 (0.160)	0.222 (0.028)			
P042115	C9	15	2.110 (0.191)	0.356 (0.038)	0.294 (0.021)			
P042116	C9	16	2.792 (0.174)	1.247 (0.035)	0.226 (0.011)			
P042117	C9	17	0.931 (0.078)	-0.415 (0.095)	0.233 (0.038)			
P042118	C9	18	0.964 (0.087)	-0.479 (0.106)	0.303 (0.041)			
P042119	C9	19	0.911 (0.101)	0.675 (0.074)	0.220 (0.027)			
P041401	C10	1	0.488 (0.051)	-0.747 (0.205)	0.244 (0.051)			
P041402	C10	2	0.822 (0.078)	-0.343 (0.117)	0.288 (0.040)			
P041403	C10	3	1.072 (0.108)	0.338 (0.072)	0.294 (0.028)			
P041404	C10	4A	0.646 (0.023)	0.431 (0.033)	0.000 (0.000)	2.034 (0.067)	-0.556 (0.054)	-1.477 (0.093)
P041405	C10	5	0.768 (0.087)	-0.462 (0.164)	0.394 (0.048)			
P041406	C10	6	1.323 (0.142)	-0.765 (0.116)	0.520 (0.041)			
P041407	C10	7	0.955 (0.207)	1.650 (0.141)	0.328 (0.022)			

Table E-14 (continued)
IRT Parameters for the 1998 Civics Items, Grade 12

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		c_j (s.e.)		d_{1j} (s.e.)		d_{2j} (s.e.)		d_{3j} (s.e.)	
P041408	C10	8A	0.397	(0.023)	-0.149	(0.047)	0.000	(0.000)	0.149	(0.090)	-0.149	(0.084)		
P041409	C10	9	2.771	(0.211)	0.606	(0.027)	0.273	(0.015)						
P041410	C10	10	0.993	(0.121)	0.822	(0.070)	0.251	(0.025)						
P041411	C10	11	1.471	(0.131)	0.611	(0.042)	0.192	(0.019)						
P041412	C10	12A	1.037	(0.050)	1.424	(0.035)	0.000	(0.000)	0.784	(0.033)	-0.784	(0.080)		
P041413	C10	13A	0.798	(0.037)	1.094	(0.036)	0.000	(0.000)	0.850	(0.040)	-0.850	(0.070)		
P041414	C10	14	0.971	(0.098)	-0.080	(0.101)	0.335	(0.037)						
P041415	C10	15	0.595	(0.093)	0.779	(0.145)	0.277	(0.041)						
P041416	C10	16	1.175	(0.105)	-0.719	(0.099)	0.340	(0.041)						
P041417	C10	17	0.832	(0.081)	-0.068	(0.102)	0.248	(0.037)						
P041418	C10	18	0.457	(0.048)	-1.601	(0.261)	0.265	(0.058)						
P041419	C10	19	1.829	(0.156)	1.097	(0.042)	0.200	(0.014)						

Table E-15
IRT Parameters for the 1998 State Reading Items
Reading for Literary Experience Scale, Grade 4

NAEP ID	Block	Item	a _j (s.e.)	b _j (s.e.)	c _j (s.e.)	d _{j1} (s.e.)	d _{j2} (s.e.)	d _{j3} (s.e.)
1R017001	R3	1A	0.632 (0.020)	-0.971 (0.038)	0.000 (0.000)			
1R017002	R3	2	1.368 (0.056)	-0.517 (0.037)	0.214 (0.019)			
1R017003	R3	3A	0.461 (0.014)	0.480 (0.023)	0.000 (0.000)	0.102 (0.040)	-0.102 (0.044)	
1R017004	R3	4A	0.895 (0.031)	0.985 (0.027)	0.000 (0.000)			
1R017005	R3	5	0.690 (0.071)	0.945 (0.067)	0.285 (0.022)			
1R017006	R3	6A	0.981 (0.036)	1.113 (0.029)	0.000 (0.000)			
1R017007	R3	7A	0.539 (0.014)	0.392 (0.016)	0.000 (0.000)	0.237 (0.042)	0.201 (0.043)	-0.438 (0.045)
1R017008	R3	8	1.090 (0.056)	0.437 (0.031)	0.129 (0.014)			
1R017009	R3	9A	0.484 (0.011)	-0.160 (0.033)	0.000 (0.000)	1.963 (0.055)	-1.963 (0.046)	
1R012101	R4	1	1.841 (0.090)	-1.000 (0.039)	0.293 (0.023)			
1R012102	R4	2A	0.619 (0.021)	-0.051 (0.027)	0.000 (0.000)			
1R012103	R4	3	1.306 (0.052)	-0.514 (0.036)	0.165 (0.018)			
1R012104	R4	4A	0.694 (0.022)	-0.504 (0.029)	0.000 (0.000)			
1R012105	R4	5	0.873 (0.048)	0.046 (0.053)	0.198 (0.021)			
1R012106	R4	6A	0.857 (0.027)	0.253 (0.021)	0.000 (0.000)			
1R012107	R4	7	1.400 (0.072)	0.319 (0.030)	0.237 (0.014)			
1R012108	R4	8A	0.608 (0.022)	-1.111 (0.046)	0.000 (0.000)			
1R012109	R4	9A	0.577 (0.022)	-1.396 (0.057)	0.000 (0.000)			
1R012110	R4	10	0.935 (0.054)	-0.880 (0.090)	0.330 (0.035)			
1R012111	R4	11A	0.965 (0.026)	1.324 (0.019)	0.000 (0.000)	0.953 (0.021)	-0.953 (0.048)	
1R012112	R4	12A	0.689 (0.028)	-0.668 (0.041)	0.000 (0.000)			
1R012601	R5	1A	0.855 (0.033)	1.231 (0.036)	0.000 (0.000)			
1R012602	R5	2	1.488 (0.086)	1.212 (0.029)	0.182 (0.008)			
1R012603	R5	3	1.383 (0.068)	0.162 (0.032)	0.261 (0.016)			
1R012604	R5	4A	1.195 (0.041)	1.040 (0.023)	0.000 (0.000)			
1R012605	R5	5	0.972 (0.086)	0.979 (0.045)	0.290 (0.016)			
1R012606	R5	6	1.716 (0.098)	0.494 (0.027)	0.321 (0.013)			
1R012607	R5	7A	0.954 (0.026)	1.278 (0.017)	0.000 (0.000)	0.838 (0.021)	-0.055 (0.030)	-0.783 (0.062)
1R012608	R5	8	0.619 (0.051)	-0.504 (0.154)	0.350 (0.042)			
1R012609	R5	9	1.313 (0.096)	0.770 (0.034)	0.279 (0.015)			
1R012610	R5	10	2.155 (0.143)	0.491 (0.027)	0.420 (0.013)			
1R012611	R5	11A	0.719 (0.027)	0.302 (0.027)	0.000 (0.000)			
1R015801	R9	1	1.012 (0.048)	-1.319 (0.075)	0.247 (0.032)			
1R015802	R9	2A	0.515 (0.020)	-1.392 (0.056)	0.000 (0.000)			

Table E-15 (continued)
IRT Parameters for the 1998 State Reading Items, Grade 4

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{1j} (s.e.)	d_{2j} (s.e.)	d_{3j} (s.e.)
1R015803	R9	3A	0.570 (0.012)	-0.286 (0.025)	0.000 (0.000)	1.604 (0.042)	-1.604 (0.034)	
1R015804	R9	4A	0.572 (0.012)	0.751 (0.021)	0.000 (0.000)	2.198 (0.040)	-0.468 (0.035)	-1.730 (0.073)
1R015805	R9	5	1.166 (0.069)	0.314 (0.040)	0.277 (0.017)			
1R015806	R9	6A	0.606 (0.015)	0.375 (0.023)	0.000 (0.000)	1.198 (0.034)	-1.198 (0.038)	
1R015807	R9	7A	0.596 (0.015)	-0.101 (0.025)	0.000 (0.000)	1.292 (0.041)	-1.292 (0.036)	
1R015808	R9	8	0.709 (0.041)	-1.145 (0.113)	0.218 (0.039)			
1R015809	R9	9A	0.616 (0.016)	0.032 (0.026)	0.000 (0.000)	1.294 (0.042)	-1.294 (0.038)	

Table E-16
IRT Parameters for the 1998 State Reading Items
Reading to Gain Information Scale, Grade 4

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
2R012201	R6	1A	0.280 (0.016)	-1.166 (0.085)	0.000 (0.000)			
2R012202	R6	2	1.211 (0.079)	0.594 (0.040)	0.347 (0.015)			
2R012203	R6	3	0.697 (0.048)	0.531 (0.065)	0.201 (0.022)			
2R012204	R6	4A	0.471 (0.012)	0.112 (0.019)	0.000 (0.000)	1.405 (0.048)	-0.518 (0.043)	-0.887 (0.051)
2R012205	R6	5	1.434 (0.088)	0.627 (0.033)	0.308 (0.013)			
2R012206	R6	6A	1.088 (0.033)	0.685 (0.021)	0.000 (0.000)			
2R012207	R6	7	0.634 (0.040)	-0.687 (0.121)	0.245 (0.039)			
2R012208	R6	8A	0.848 (0.028)	-0.616 (0.029)	0.000 (0.000)			
2R012209	R6	9	1.310 (0.066)	0.305 (0.033)	0.186 (0.016)			
2R012210	R6	10A	0.591 (0.026)	-1.592 (0.068)	0.000 (0.000)			
2R012701	R7	1	1.207 (0.059)	-0.035 (0.041)	0.285 (0.019)			
2R012702	R7	2A	0.509 (0.020)	-1.318 (0.055)	0.000 (0.000)			
2R012703	R7	8A	1.127 (0.032)	0.637 (0.018)	0.000 (0.000)			
2R012704	R7	4	1.291 (0.063)	0.785 (0.025)	0.123 (0.010)			
2R012705	R7	5A	1.322 (0.046)	1.308 (0.026)	0.000 (0.000)			
2R012706	R7	6A	0.571 (0.025)	1.482 (0.057)	0.000 (0.000)			
2R012707	R7	3	2.009 (0.095)	0.301 (0.023)	0.246 (0.012)			
2R012708	R7	10A	0.647 (0.018)	1.653 (0.022)	0.000 (0.000)	1.285 (0.031)	0.534 (0.039)	-1.819 (0.118)
2R012709	R7	9	0.582 (0.055)	0.118 (0.145)	0.332 (0.039)			
2R012710	R7	11A	0.990 (0.038)	0.995 (0.029)	0.000 (0.000)			
2R015701	R8	1	0.877 (0.051)	-0.946 (0.098)	0.343 (0.037)			
2R015702	R8	2A	0.619 (0.011)	0.002 (0.024)	0.000 (0.000)	1.782 (0.037)	-1.782 (0.035)	
2R015703	R8	3A	0.668 (0.013)	0.100 (0.022)	0.000 (0.000)	1.527 (0.033)	-1.527 (0.032)	
2R015704	R8	4A	0.598 (0.016)	-0.294 (0.020)	0.000 (0.000)	0.387 (0.036)	-0.387 (0.031)	
2R015705	R8	5A	0.710 (0.018)	0.263 (0.018)	0.000 (0.000)	0.821 (0.028)	-0.821 (0.030)	
2R015706	R8	6	0.876 (0.074)	1.304 (0.048)	0.183 (0.014)			
2R015707	R8	7A	0.540 (0.013)	0.452 (0.025)	0.000 (0.000)	1.306 (0.036)	-1.306 (0.042)	
2R015708	R8	8	0.538 (0.032)	-0.283 (0.098)	0.145 (0.031)			
2R015709	R8	9A	0.460 (0.018)	1.083 (0.037)	0.000 (0.000)	0.347 (0.044)	-0.347 (0.058)	
2R012501	R10	1	1.343 (0.168)	2.266 (0.136)	0.311 (0.007)			
2R012502	R10	2	0.897 (0.047)	-1.902 (0.113)	0.267 (0.049)			
2R012503	R10	3A	1.067 (0.029)	-0.122 (0.018)	0.000 (0.000)			
2R012504	R10	4A	0.816 (0.024)	-0.330 (0.023)	0.000 (0.000)			
2R012505	R10	5	1.094 (0.050)	-0.829 (0.056)	0.231 (0.027)			

Table E-16 (continued)
IRT Parameters for the 1998 State Reading Items
Reading to Gain Information Scale, Grade 4

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
2R012506	R10	6A	0.804 (0.024)	-0.249 (0.023)	0.000 (0.000)			
2R012507	R10	7	1.103 (0.060)	-0.664 (0.065)	0.343 (0.028)			
2R012508	R10	8A	0.978 (0.029)	-0.482 (0.022)	0.000 (0.000)			
2R012509	R10	9	0.673 (0.040)	-0.651 (0.108)	0.235 (0.037)			
2R012510	R10	10	1.143 (0.064)	-0.253 (0.056)	0.353 (0.024)			
2R012511	R10	11A	1.050 (0.032)	-0.573 (0.024)	0.000 (0.000)			
2R012512	R10	12A	0.377 (0.012)	0.416 (0.024)	0.000 (0.000)	0.737 (0.060)	0.119 (0.060)	-0.856 (0.069)

Table E-17
IRT Parameters for the 1998 State Reading Items
Reading for Literary Experience Scale, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
1R017101	R3	1A	1.247 (0.039)	-0.374 (0.022)	0.000 (0.000)			
1R017102	R3	2A	0.587 (0.023)	1.192 (0.037)	0.000 (0.000)	0.235 (0.041)	-0.235 (0.058)	
1R017103	R3	3	0.737 (0.047)	0.083 (0.069)	0.140 (0.025)			
1R017104	R3	4A	1.130 (0.035)	0.759 (0.017)	0.000 (0.000)	0.265 (0.023)	-0.265 (0.029)	
1R017105	R3	5A	0.803 (0.022)	1.084 (0.019)	0.000 (0.000)	0.833 (0.032)	0.511 (0.035)	-1.344 (0.071)
1R017106	R3	6	0.705 (0.121)	1.963 (0.147)	0.234 (0.018)			
1R017107	R3	7A	0.530 (0.021)	0.883 (0.034)	0.000 (0.000)	0.494 (0.044)	-0.494 (0.058)	
1R017108	R3	8A	1.408 (0.060)	1.127 (0.027)	0.000 (0.000)			
1R017109	R3	9	0.737 (0.053)	-0.787 (0.133)	0.272 (0.047)			
1R017110	R3	10A	1.111 (0.041)	0.111 (0.024)	0.000 (0.000)			
1R015901	R4	1A	0.430 (0.021)	-0.528 (0.052)	0.000 (0.000)			
1R015902	R4	2A	0.618 (0.019)	0.139 (0.026)	0.000 (0.000)	1.092 (0.040)	-1.092 (0.041)	
1R015903	R4	3	0.873 (0.068)	0.346 (0.066)	0.244 (0.024)			
1R015904	R4	4A	0.461 (0.016)	1.907 (0.044)	0.000 (0.000)	1.661 (0.045)	-1.661 (0.105)	
1R015905	R4	5A	0.442 (0.017)	0.329 (0.032)	0.000 (0.000)	0.733 (0.053)	-0.733 (0.057)	
1R015906	R4	6A	0.470 (0.014)	2.967 (0.035)	0.000 (0.000)	3.872 (0.049)	0.817 (0.062)	-4.690 (0.816)
1R015907	R4	7A	0.489 (0.013)	0.100 (0.038)	0.000 (0.000)	1.820 (0.058)	-1.820 (0.057)	
1R015908	R4	8A	0.557 (0.022)	1.054 (0.037)	0.000 (0.000)	1.032 (0.046)	-1.032 (0.069)	
1R012601	R5	1A	0.736 (0.027)	0.026 (0.029)	0.000 (0.000)			
1R012602	R5	2	0.979 (0.058)	0.265 (0.045)	0.140 (0.019)			
1R012603	R5	3	1.191 (0.064)	-0.960 (0.067)	0.225 (0.034)			
1R012604	R5	4A	0.737 (0.027)	0.022 (0.029)	0.000 (0.000)			
1R012605	R5	5	0.584 (0.046)	-0.273 (0.134)	0.216 (0.041)			
1R012606	R5	6	1.513 (0.085)	-0.783 (0.052)	0.269 (0.028)			
1R012607	R5	7A	0.560 (0.017)	0.316 (0.021)	0.000 (0.000)	1.126 (0.049)	-0.057 (0.045)	-1.069 (0.056)
1R012608	R5	8	0.527 (0.036)	-2.010 (0.193)	0.238 (0.057)			
1R012609	R5	9	1.305 (0.082)	-0.089 (0.051)	0.301 (0.022)			
1R012610	R5	10	1.247 (0.083)	-0.613 (0.075)	0.376 (0.032)			
1R012611	R5	11A	0.627 (0.026)	-0.800 (0.045)	0.000 (0.000)			

Table E-18
IRT Parameters for the 1998 State Reading Items
Reading to Gain Information Scale, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
2R013201	R6	1A	0.609 (0.019)	0.782 (0.022)	0.000 (0.000)	1.108 (0.040)	-0.069 (0.043)	-1.039 (0.067)
2R013202	R6	2	0.713 (0.053)	-0.265 (0.105)	0.270 (0.035)			
2R013203	R6	3A	1.221 (0.059)	-1.924 (0.055)	0.000 (0.000)			
2R013204	R6	4	0.962 (0.065)	-0.189 (0.073)	0.293 (0.029)			
2R013205	R6	5A	0.978 (0.039)	-1.322 (0.043)	0.000 (0.000)			
2R013206	R6	6	0.781 (0.056)	0.116 (0.075)	0.214 (0.028)			
2R013207	R6	7A	0.717 (0.029)	-0.836 (0.042)	0.000 (0.000)			
2R013208	R6	8	1.856 (0.106)	-0.091 (0.033)	0.272 (0.019)			
2R013209	R6	9A	0.775 (0.036)	1.064 (0.042)	0.000 (0.000)			
2R013210	R6	10	1.360 (0.236)	2.338 (0.187)	0.311 (0.009)			
2R013211	R6	11A	0.414 (0.028)	1.221 (0.082)	0.000 (0.000)			
2R013212	R6	12A	0.549 (0.017)	1.904 (0.034)	0.000 (0.000)	2.069 (0.042)	-0.541 (0.070)	-1.527 (0.211)
2R012701	R7	1	1.063 (0.069)	-1.438 (0.103)	0.346 (0.045)			
2R012702	R7	2A	0.598 (0.030)	-2.244 (0.097)	0.000 (0.000)			
2R012707	R7	3	1.577 (0.093)	-1.073 (0.056)	0.286 (0.032)			
2R012704	R7	4	1.084 (0.055)	-0.486 (0.052)	0.170 (0.025)			
2R012705	R7	5A	0.871 (0.031)	-0.010 (0.025)	0.000 (0.000)			
2R012706	R7	6A	0.409 (0.023)	0.486 (0.052)	0.000 (0.000)			
2R012711	R7	7	0.957 (0.053)	-0.441 (0.063)	0.185 (0.028)			
2R012703	R7	8A	0.949 (0.033)	-0.428 (0.027)	0.000 (0.000)			
2R012709	R7	9	0.755 (0.059)	-0.712 (0.135)	0.365 (0.043)			
2R012708	R7	10A	0.579 (0.016)	0.520 (0.023)	0.000 (0.000)	1.579 (0.049)	0.354 (0.040)	-1.934 (0.071)
2R012710	R7	11A	0.798 (0.031)	-0.603 (0.034)	0.000 (0.000)			
2R012712	R7	12	0.729 (0.061)	0.163 (0.093)	0.259 (0.031)			
2R012713	R7	13A	1.191 (0.045)	-0.647 (0.028)	0.000 (0.000)			
2R017201	R8	1	0.851 (0.060)	-0.697 (0.108)	0.334 (0.039)			
2R017202	R8	2A	0.480 (0.018)	-0.518 (0.033)	0.000 (0.000)	0.715 (0.057)	-0.715 (0.046)	
2R017203	R8	3	1.109 (0.077)	-0.153 (0.067)	0.347 (0.027)			
2R017204	R8	4A	0.735 (0.021)	0.659 (0.024)	0.000 (0.000)	1.086 (0.031)	-1.086 (0.044)	
2R017205	R8	5A	0.596 (0.015)	0.464 (0.024)	0.000 (0.000)	2.107 (0.050)	-0.329 (0.040)	-1.778 (0.073)
2R017206	R8	6	0.956 (0.098)	0.866 (0.061)	0.332 (0.020)			
2R017207	R8	7A	0.315 (0.016)	1.733 (0.074)	0.000 (0.000)	1.097 (0.068)	-1.097 (0.110)	
2R017208	R8	8A	0.607 (0.017)	1.197 (0.032)	0.000 (0.000)	1.728 (0.037)	-1.728 (0.076)	
2R017209	R8	9	0.957 (0.071)	0.208 (0.064)	0.265 (0.025)			

Table E-18 (continued)
IRT Parameters for the 1998 State Reading Items
Reading to Gain Information Scale, Grade 8

NAEP ID	Block	Item	a_j (s.e.)	b_j (s.e.)	c_j (s.e.)	d_{j1} (s.e.)	d_{j2} (s.e.)	d_{j3} (s.e.)
2R017210	R8	10A	0.424 (0.035)	2.527 (0.186)	0.000 (0.000)			
2R016201	R13	1A	0.551 (0.028)	-3.547 (0.134)	0.000 (0.000)	0.096 (0.206)	-0.096 (0.079)	
2R016202	R13	2A	0.581 (0.013)	-0.928 (0.042)	0.000 (0.000)	2.836 (0.093)	-2.836 (0.046)	
2R016203	R13	3	0.539 (0.049)	-0.646 (0.191)	0.344 (0.048)			
2R016204	R13	4A	0.531 (0.011)	-0.415 (0.037)	0.000 (0.000)	3.169 (0.124)	0.887 (0.045)	-4.056 (0.092)
2R016205	R13	5A	0.585 (0.015)	0.699 (0.031)	0.000 (0.000)	1.655 (0.040)	-1.655 (0.057)	
2R016206	R13	6	1.057 (0.066)	-0.831 (0.082)	0.326 (0.035)			
2R016207	R13	7A	0.546 (0.019)	0.313 (0.025)	0.000 (0.000)	0.157 (0.044)	-0.157 (0.047)	
2R016208	R13	8	0.997 (0.065)	-0.898 (0.095)	0.354 (0.038)			
2R016209	R13	9	1.396 (0.076)	-0.694 (0.051)	0.253 (0.027)			
2R016210	R13	10A	0.664 (0.018)	0.810 (0.022)	0.000 (0.000)	1.787 (0.041)	0.249 (0.036)	-2.036 (0.086)
2R016211	R13	11A	0.407 (0.014)	-2.439 (0.047)	0.000 (0.000)	2.597 (0.158)	-2.597 (0.049)	
2R016212	R13	12A	0.394 (0.017)	-0.101 (0.034)	0.000 (0.000)	0.284 (0.063)	-0.284 (0.059)	
2R016213	R13	13A	0.425 (0.019)	-2.107 (0.069)	0.000 (0.000)	1.149 (0.115)	-1.149 (0.051)	

Table E-19
IRT Parameters for the 1998 State Reading Items
Reading to Perform a Task Scale, Grade 8

NAEP ID	Block	Item	a _j (s.e.)	b _j (s.e.)	c _j (s.e.)	d _{j1} (s.e.)	d _{j2} (s.e.)	d _{j3} (s.e.)
3R016101	R9	1A	0.609 (0.020)	-0.112 (0.024)	0.000 (0.000)	0.236 (0.043)	-0.236 (0.040)	
3R016102	R9	2	1.024 (0.066)	-0.783 (0.085)	0.315 (0.035)			
3R016103	R9	3	1.172 (0.081)	0.335 (0.048)	0.283 (0.020)			
3R016104	R9	4A	0.740 (0.036)	-2.166 (0.081)	0.000 (0.000)			
3R016105	R9	5	1.368 (0.078)	-0.442 (0.049)	0.264 (0.025)			
3R016106	R9	6	0.847 (0.077)	1.123 (0.055)	0.161 (0.017)			
3R016107	R9	7A	0.715 (0.020)	-0.187 (0.020)	0.000 (0.000)	-0.218 (0.041)	0.218 (0.038)	
3R016108	R9	8A	0.354 (0.011)	-0.127 (0.034)	0.000 (0.000)	-1.233 (0.082)	1.233 (0.079)	
3R016109	R9	9A	0.416 (0.012)	0.850 (0.042)	0.000 (0.000)	1.909 (0.055)	-1.909 (0.078)	
3R013401	R10	1	1.459 (0.091)	0.319 (0.036)	0.260 (0.017)			
3R013402	R10	2A	0.812 (0.031)	0.073 (0.027)	0.000 (0.000)			
3R013403	R10	3A	0.465 (0.011)	0.485 (0.026)	0.000 (0.000)	-2.456 (0.093)	2.456 (0.095)	
3R013404	R10	4	0.936 (0.072)	-0.101 (0.084)	0.367 (0.030)			
3R013405	R10	5A	0.896 (0.033)	-0.341 (0.027)	0.000 (0.000)			
3R013406	R10	6A	0.622 (0.028)	0.402 (0.035)	0.000 (0.000)			
3R013407	R10	7A	0.589 (0.026)	-0.627 (0.044)	0.000 (0.000)			
3R013408	R10	8	0.637 (0.059)	0.239 (0.112)	0.271 (0.034)			
3R013409	R10	9A	0.686 (0.029)	-0.370 (0.035)	0.000 (0.000)			
3R013410	R10	10	0.666 (0.053)	-0.585 (0.138)	0.291 (0.043)			
3R013411	R10	11A	0.464 (0.026)	-1.301 (0.080)	0.000 (0.000)			
3R013412	R10	12A	0.388 (0.028)	-2.743 (0.188)	0.000 (0.000)			
3R013001	R11	1A	0.909 (0.035)	-1.154 (0.041)	0.000 (0.000)			
3R013002	R11	2	1.480 (0.076)	-0.431 (0.039)	0.190 (0.022)			
3R013003	R11	3A	0.899 (0.033)	-0.547 (0.030)	0.000 (0.000)			
3R013004	R11	4A	0.378 (0.017)	0.625 (0.039)	0.000 (0.000)	0.357 (0.060)	-0.357 (0.069)	
3R013005	R11	5A	0.876 (0.035)	-1.281 (0.046)	0.000 (0.000)			
3R013006	R11	6	0.955 (0.059)	-0.381 (0.071)	0.242 (0.030)			
3R013007	R11	7A	0.599 (0.029)	-1.580 (0.073)	0.000 (0.000)			
3R013008	R11	8A	0.780 (0.031)	0.095 (0.029)	0.000 (0.000)			
3R013009	R11	9A	0.891 (0.037)	-1.165 (0.045)	0.000 (0.000)			
3R013010	R11	10A	0.749 (0.033)	-1.104 (0.050)	0.000 (0.000)			
3R013011	R11	11A	0.393 (0.024)	-0.358 (0.060)	0.000 (0.000)			
3R013012	R11	12	0.887 (0.064)	-0.084 (0.078)	0.237 (0.031)			

Table E-20
IRT Parameters for the 1998 State Writing Items, Grade 8

NAEP ID	Block	Item	a_j (s.e.)		b_j (s.e.)		d_{j1} (s.e.)		d_{j2} (s.e.)		d_{j3} (s.e.)		d_{j4} (s.e.)		d_{j5} (s.e.)	
1W006002	W3	1	0.808	(0.026)	-0.283	(0.021)	2.946	(0.160)	1.049	(0.056)	-0.163	(0.043)	-1.473	(0.052)	-2.359	(0.089)
1W006102	W4	1	0.970	(0.030)	-0.360	(0.019)	3.399	(0.216)	0.907	(0.047)	-0.175	(0.035)	-1.645	(0.045)	-2.487	(0.082)
1W006202	W5	1	0.869	(0.027)	-0.061	(0.021)	3.173	(0.151)	1.240	(0.048)	-0.365	(0.039)	-1.468	(0.055)	-2.580	(0.112)
1W006302	W6	1	0.856	(0.026)	-0.049	(0.019)	1.333	(0.088)	1.672	(0.069)	0.482	(0.042)	-0.957	(0.044)	-2.529	(0.092)
1W006402	W7	1	0.940	(0.028)	-0.341	(0.018)	1.877	(0.091)	1.132	(0.055)	0.280	(0.038)	-1.244	(0.041)	-2.045	(0.064)
1W006502	W8	1	0.884	(0.026)	-0.487	(0.022)	2.771	(0.205)	1.417	(0.071)	0.358	(0.040)	-1.465	(0.041)	-3.080	(0.097)
1W006602	W9	1	1.091	(0.032)	-0.367	(0.018)	2.599	(0.127)	0.954	(0.048)	0.278	(0.034)	-1.593	(0.039)	-2.238	(0.067)
1W006802	W11	1	0.996	(0.029)	-0.177	(0.019)	2.516	(0.117)	1.395	(0.051)	0.048	(0.033)	-1.694	(0.047)	-2.265	(0.086)
1W006902	W12	1	1.065	(0.031)	-0.091	(0.020)	2.603	(0.116)	1.452	(0.050)	0.230	(0.032)	-1.724	(0.047)	-2.561	(0.101)
1W007002	W13	1	1.066	(0.031)	-0.191	(0.020)	2.522	(0.123)	1.492	(0.054)	0.283	(0.033)	-1.632	(0.042)	-2.665	(0.095)
1W007102	W14	1	0.910	(0.025)	-0.138	(0.021)	2.164	(0.118)	1.643	(0.066)	0.608	(0.038)	-1.716	(0.047)	-2.698	(0.107)
1W007202	W15	1	1.061	(0.031)	0.245	(0.019)	2.447	(0.086)	1.567	(0.043)	-0.113	(0.031)	-1.728	(0.058)	-2.174	(0.117)
1W007302	W16	1	0.886	(0.026)	0.148	(0.022)	2.374	(0.096)	1.573	(0.054)	0.367	(0.037)	-2.197	(0.071)	-2.117	(0.131)
1W007402	W17	1	0.940	(0.029)	-0.075	(0.019)	1.884	(0.090)	1.404	(0.056)	0.268	(0.037)	-1.295	(0.045)	-2.261	(0.083)
1W007602	W19	1	1.211	(0.037)	-0.014	(0.016)	2.286	(0.074)	1.280	(0.038)	-0.120	(0.029)	-1.298	(0.040)	-2.148	(0.075)
1W007702	W20	1	1.260	(0.038)	0.236	(0.018)	2.536	(0.080)	1.515	(0.038)	0.135	(0.028)	-1.584	(0.048)	-2.602	(0.129)
1W007802	W21	1	1.238	(0.038)	0.010	(0.016)	1.631	(0.064)	1.423	(0.045)	0.249	(0.029)	-1.170	(0.037)	-2.132	(0.070)
1W007902	W22	1	0.776	(0.022)	0.044	(0.024)	2.674	(0.129)	1.681	(0.060)	0.076	(0.040)	-2.285	(0.076)	-2.145	(0.136)
1W008002	W23	1	1.109	(0.033)	0.047	(0.019)	2.898	(0.120)	1.426	(0.044)	0.152	(0.031)	-1.584	(0.046)	-2.891	(0.133)
1W008102	W24	1	0.981	(0.030)	0.050	(0.018)	1.951	(0.076)	1.384	(0.049)	0.243	(0.035)	-1.482	(0.049)	-2.096	(0.089)

Appendix F

CONDITIONING VARIABLES AND CONTRAST CODINGS

This appendix contains information about the conditioning variables used in scaling/plausible value estimation for the 1998 NAEP assessment. The initial step in construction of conditioning variables involves forming primary student-based vectors of response data from answers to student, teacher, and school questionnaires, demographic and background data such as supplied by Westat, Inc., and other student information known prior to scaling. The initial conditioning vectors concatenate this student background information into a series of identifying “contrasts” comprising:

1. Categorical variables derived by expanding the response options of a questionnaire variable into a binary series of one-degree-of-freedom “dummy” variables or contrasts, (these form the majority of each student conditioning vector);
2. Questionnaire or demographic variables that possess ordinal response options, such as number of hours spent watching television, which are included as linear and/or quadratic multi-degree-of-freedom contrasts;
3. Continuous variables, such as student logit scores based on percent correct values, included as contrasts in their original form or a transformation of their original form, and;
4. Interactions of two or more categorical variables forming a set of orthogonal one-degree-of-freedom dummy variables or contrasts.

This appendix gives the specifications used for constructing the conditioning variables.

- ◆ Table F-1 defines the information provided for each sample variable.
- ◆ Table F-2 provides a summary of the reading conditioning variables specifications that are contained in the remainder of this appendix.
- ◆ Table F-3 provides a summary of the writing conditioning variables specifications that are contained in the remainder of this appendix.
- ◆ Table F-4 provides a summary of the civics conditioning variables specifications that are contained in the remainder of this appendix.
- ◆ Tables F-5, F-6, and F-7 contain conditioning variable data specific to each subject.

As described in Chapter 12, the linear conditioning model employed for the estimation of plausible values did not directly use the conditioning variable specifications listed in this appendix. To eliminate inherent instabilities in estimation encountered when using a large number of correlated variables, a principal component transformation of the correlation matrix obtained from the conditioning variable contrasts derived according to these primary specifications was performed. The principal components scores based on this transformation were used as the predictor variables in estimating the linear conditioning model. For the national assessment, the proportions of variance of the conditioning

contrast accounted for by the principal components are given for each grade level in Tables F-8, F-9, and F-10 for reading, and Tables F-11, F-12, and F-13 for writing, and Tables F-14, F-15, and F-16 for civics.

Table F-1
Description of Specifications Provided for Each Conditioning Variable

Title	Description
CONDITIONING ID	A unique eight-character ID assigned to identify each conditioning variable corresponding to a particular background or subject area question within the entire pool of conditioning variables. The first four characters identify the origin of the variable: BACK (background questionnaire), READ (student reading questionnaire), SCHL (school questionnaire), TCHR (background part of teacher questionnaire), and TSUB (subject classroom part of teacher questionnaire). The second four digits represent the sequential position within each origin group.
DESCRIPTION	A short description of the conditioning variable.
GRADES/ASSESSMENTS	Three characters identifying assessment (“S” for state, “N” for national) and grade (04, 08, and 12) in which the conditioning variable was used.
CONDITIONING VAR LABEL	A descriptive eight-character label identifying the conditioning variable.
NAEP ID	The seven-character NAEP database identification for the conditioning variable.
TYPE OF CONTRAST	The type of conditioning variable. “CLASS” identifies a categorical conditioning variable and “SCALE” identifies continuous or quasi-continuous conditioning variables. “INTERACTION” identifies a set of orthogonal contrasts formed from two or more “CLASS” variables. “OTHER” conditioning variables do not fall into any of the above types.
TOTAL NUMBER OF SPECIFIED CONTRASTS	Each conditioning variable forms a set of one or more contrasts. For each valid response value of conditioning variable a contrast must be defined. One or more response values may be collapsed together to form one contrast. The number of response value “sets” of a conditioning variable forming a unique contrast is the value given in this field.
NUMBER OF INDEPENDENT CONTRASTS	The number of degree of freedom in a set of contrasts formed from a conditioning variable. For a categorical conditioning variable this number would be the number of response options minus one if each response option formed its own unique contrast.

Table F-2
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
BACK0001	BKSER		GRAND MEAN	X	X	X
BACK0002	DSEX		DERIVED SEX	X	X	X
BACK0003	DRACE		DERIVED RACE/ETHNICITY	X	X	X
BACK0004	B003101	TB003101	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND?	X	X	X
BACK0005	TOL7		TOL 7 - TYPE OF LOCATION	X	X	X
BACK0006	TOL5		TYPE OF LOCALE (5 CATEGORIES)	X	X	X
BACK0007	PARED		PARENTS' HIGHEST LEVEL OF EDUCATION, GRADES 8 AND 12	-	X	X
BACK0008	PARED2		PARENTS' HIGHEST LEVEL OF EDUCATION, GRADE 4	X	-	-
BACK0009	REGION		REGION OF THE COUNTRY	X	X	X
BACK0010	SCHTYPE		SCHOOL TYPE	X	X	X
BACK0011	RACE		RACE	X	X	X
BACK0012	IEP		INDIVIDUALIZED EDUCATION PLAN	X	X	X
BACK0013	LEP		LIMITED ENGLISH PROFICIENCY	X	X	X
BACK0014	TITLE1		TITLE 1: (BOOK COVER)	X	X	X
BACK0015	SLUNCH		DO YOU RECEIVE A FREE OR REDUCED-PRICE LUNCH?	X	X	X
BACK0016	B001801	TB001801	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (LINEAR)	X	X	X
BACK0017	B001801	TB001801	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (QUADRATIC)	X	X	X
BACK0018	B006601	TB006601	HOMEWORK ASSIGNED?: BASED ON TIME SPENT ON HOMEWORK EACH DAY.	X	X	X
BACK0019	B006601	TB006601	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY? (LINEAR)	X	X	X
BACK0020	B006601	TB006601	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY (QUADRATIC)	X	X	X
BACK0021	HOMEN2		NUMBER OF ITEMS IN THE HOME (NEWSPAPER, > 25 BOOKS, ENCYCLOPEDIA, MAGAZINES) (DERIVED)	X	X	X
BACK0022	B001101	TB001101	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?	X	X	X
BACK0023	B001101	TB001101	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?	X	X	X
BACK0024	INTERACT		INTERACTION: GENDER BY RACE/ETHNICITY	X	X	X
BACK0025	INTERACT		INTERACTION: GENDER BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0026	INTERACT		INTERACTION: GENDER BY PARENTS' EDUCATION GRADES 8 & 12	-	X	X
BACK0027	INTERACT		INTERACTION: GENDER BY PARENTS' EDUCATION GRADE 4	X	-	-
BACK0028	INTERACT		INTERACTION: GENDER BY SCHOOL TYPE	X	X	X
BACK0029	INTERACT		INTERACTION: RACE/ETHNICITY BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0030	INTERACT		INTERACTION: RACE/ETHNICITY BY PARENTS' EDUCATION GRADES 8 & 12	-	X	X
BACK0031	INTERACT		INTERACTION: RACE/ETHNICITY BY PARENTS' EDUCATION GRADE 4	X	-	-
BACK0032	INTERACT		INTERACTION: RACE/ETHNICITY BY SCHOOL TYPE	X	X	X
BACK0033	INTERACT		INTERACTION: PARENT'S EDUCATION GRADES 8 & 12 BY TYPE OF LOCALE (7 CATEGORIES)	-	X	X
BACK0034	INTERACT		INTERACTION: PARENT'S EDUCATION GRADE 4 BY TYPE OF LOCALE (7 CATEGORIES)	X	-	-
BACK0035	INTERACT		INTERACTION: TYPE OF LOCALE (7 CATEGORIES) BY SCHOOL TYPE	X	X	X
BACK0036	INTERACT		INTERACTION: PARENTS' EDUCATION GRADES 8 & 12 BY SCHOOL TYPE	-	X	X
BACK0037	INTERACT		INTERACTION: PARENTS' EDUCATION GRADE 4 BY SCHOOL TYPE	X	-	-
BACK0038	MA96FLG		MSA/NON-MSA	-	-	-
BACK0039	MONSTUD		STATE ADMINISTRATION MONITORED/UNMONITORED SESSION	-	-	-
BACK0040	INTERACT		INTERACTION: SCHOOL TYPE BY MONITORED/UNMONITORED SESSION	-	-	-
BACK0041	SUBSAMP		SAMPLE TYPE	X	X	X
BACK0042	INTERACT		INTERACTION: SAMPLE BY RACE/ETHNICITY	X	X	X
BACK0043	RPTSAMP		REPORTING SAMPLE	X	X	X
BACK0044	DISTRPT		STATE/DISTRICT	-	-	-
BACK0045	B003001	TB003001	WHICH RACE/ETHNICITY BEST DESCRIBES YOU	X	X	X
BACK0046	B014601	LC000006	HOW LONG LIVED IN UNITED STATES	X	X	X
BACK0047	B003201	TB003201	HOW OFTEN OTHER THAN ENGLISH SPOKEN IN HOME	X	X	X
BACK0048	B013201	ID100314	MOTHER GRADUATED HIGH SCHOOL	X	-	-
BACK0049	B013301	ID100315	MOTHER HAD SOME EDUCATION AFTER HIGH SCHOOL	X	-	-
BACK0050	B013401	ID100316	MOTHER GRADUATED COLLEGE	X	-	-
BACK0051	B013501	ID100317	FATHER GRADUATED HIGH SCHOOL	X	-	-

Table F-2 (continued)
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
BACK0052	B013601	ID100318	FATHER HAD SOME EDUCATION AFTER HIGH SCHOOL	X	-	-
BACK0053	B013701	ID100319	FATHER GRADUATED COLLEGE	X	-	-
BACK0054	B000901	TB000901	DOES YOUR FAMILY GET A NEWSPAPER REGULARLY	X	X	X
BACK0055	B000903	TB000903	IS THERE AN ENCYCLOPEDIA IN YOUR HOME	X	X	X
BACK0056	B000904	TB000904	ARE THERE MORE THAN 25 BOOKS IN YOUR HOME	X	X	X
BACK0057	B000905	TB000905	DOES YOUR FAMILY GET MAGAZINES REGULARLY	X	X	X
BACK0058	S004001	TS004001	HOW MANY DAYS OF SCHOOL MISSED LAST MONTH	X	X	X
BACK0059	B007301	HE000712	TIMES CHANGED SCHOOLS IN PAST TWO YEARS	X	X	X
BACK0060	B007401	HE000717	HOW OFTEN DISCUSS STUDIES AT HOME	X	X	X
BACK0061	B014501	HE000713	HOW OFTEN USE COMPUTER FOR SCHOOLWORK	X	X	X
SUBJ0001	R830301	ID100376	HOW HARD TRIED ON THIS READING TEST THAN ON OTHERS	X	X	X
SUBJ0002	R830401	ID100377	HOW IMPORTANT TO DO WELL ON THIS READING TEST	X	X	X
SUBJ0003	RM00501	HE000781	HOW OFTEN HAD TO WRITE LONG ANSWERS TO QSTS?	X	X	X
SUBJ0004	R830501	ID100342	MY FRIENDS MAKE FUN OF PEOPLE WHO TRY TO DO WELL	X	X	X
SUBJ0005	R830502	ID100343	I HAVE FRIENDS TO TALK TO IF NEED HELP W/SCHOOL	X	X	X
SUBJ0006	R810801	HE000687	BOOKS READ OUTSIDE SCHOOL IN PAST MONTH	X	X	X
SUBJ0007	R810201	TR810201	WHAT KIND OF READER ARE YOU	X	X	X
SUBJ0008	R810901	TR810001	HOW OFTEN READ FOR FUN ON OWN	X	X	X
SUBJ0009	R810902	TR810002	HOW OFTEN TALK W/FRIENDS ABOUT WHAT YOU READ	X	X	X
SUBJ0010	R810903	TR810003	HOW OFTEN TAKE BOOKS FROM LIBRARY ON YOUR OWN	X	X	X
SUBJ0011	R810904	HE000684	HOW OFTEN READ A STORY OR NOVEL	X	X	X
SUBJ0012	R810905	HE000685	HOW OFTEN READ A NEWSPAPER	X	X	X
SUBJ0013	R810906	HE000686	HOW OFTEN READ A MAGAZINE	X	X	X
SUBJ0014	R811005	TR810105	ASKED TO DO GROUP PROJECT ABOUT WHAT YOU READ	X	X	X
SUBJ0015	R811006	TR810402	ASKED TO READ ALOUD	X	X	X
SUBJ0016	R811007	TR810412	ASKED TO READ SILENTLY	X	X	X
SUBJ0017	R811009	TR810413	GIVEN TIME TO READ BOOKS YOU HAVE CHOSEN	X	X	X
SUBJ0018	R811002	TR810102	ASKED TO TALK W/STUDENTS ABOUT WHAT YOU READ	X	X	X
SUBJ0019	R811004	TR810104	ASKED TO WRITE ABOUT WHAT YOU READ	X	X	X
SUBJ0020	R818101	ID100186	TEACHER HELPS YOU BREAK WORDS INTO PARTS	X	X	X
SUBJ0021	R818102	ID100187	TEACHER HELPS YOU UNDERSTAND NEW WORDS	X	X	X
SUBJ0022	R830001	ID100188	DO YOU AND TEACHER REVIEW PROGRESS IN READING	X	X	X
SUBJ0023	R830101	ID100189	IS THERE A SCHOOL/PUBLIC LIBRARY AVAILABLE	X	-	-
SUBJ0024	R811301	HE000695	USE LIBRARY TO DO RESEARCH FOR SCHOOL ASSIGNMENT	X	X	X
SUBJ0025	R811302	HE000696	USE LIBRARY TO BORROW BOOKS FOR SCHOOL	X	X	X
SUBJ0026	R811303	ID100190	USE LIBRARY TO USE A COMPUTER	X	X	X
SUBJ0027	R811304	HE000698	USE LIBRARY AS A QUIET PLACE TO STUDY	X	X	X
SCHL0001	C042501	ID100378	FOURTH GRADERS ASSIGNED TO CLASS BY ABILITY	X	-	-
SCHL0002	C042601	ID100041	HOW OFTEN STUDENTS RECEIVE READING INSTRUCTION	X	-	-
SCHL0003	C042602	ID100042	HOW OFTEN STUDENTS RECEIVE WRITING INSTRUCTION	X	-	-
SCHL0004	C042603	ID100043	HOW OFTEN STUDENTS RECEIVE SOC STUDIES INSTRUCT	X	-	-
SCHL0005	C042604	ID100044	HOW OFTEN STUDENTS RECEIVE COMPUTER USE INSTRUCT	X	-	-
SCHL0006	C042701	ID100379	DOES SCHOOL USE BLOCK SCHEDULING	X	X	X
SCHL0007	C042801	ID100380	ARE COMPUTERS AVAILABLE IN ALL CLASSROOMS	X	X	X
SCHL0008	C042802	HE000864	ARE COMPUTERS AVAILABLE IN COMPUTER LAB	X	X	X
SCHL0009	C042803	HE000866	ARE COMPUTERS AVAILABLE TO CLASSROOM WHEN NEEDED	X	X	X
SCHL0010	C042901	ID100381	HOW MANY COMPUTERS AVAILABLE TO STUDENTS	X	X	X
SCHL0011	C036601	LC000502	PRIMARY WAY LIBRARY IS STAFFED	X	X	X
SCHL0012	C043001	ID100069	PARENTS PARTICIPATE-PARENT-TEACHER ORG	X	X	X
SCHL0013	C043002	ID100070	PARENTS PARTICIPATE-OPEN HOUSE	X	X	X
SCHL0014	C043003	ID100071	PARTICIPATE-PARENT-TEACHER CONFERENCE	X	X	X
SCHL0015	C043004	ID100072	PARENTS PARTICIPATE-SCHOOL CURRICULUM DECISIONS	X	X	X
SCHL0016	C043005	ID100073	PARENTS PARTICIPATE-VOLUNTEER PROGRAMS	X	X	X
SCHL0017	C043006	ID100074	PARENTS PARTICIPATE-PARENTING-SKILLS PROGRAM	X	X	X

Table F-2 (continued)
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
SCHL0018	C043007	ID100076	PARENTS PARTICIPATE-SCHOOL ADVISORY COMMITTEES	X	X	X
SCHL0019	C043008	ID100077	PARENTS PARTICIPATE-CLASSROOM ASSISTANTS	X	X	X
SCHL0020	C032402	HE000888	IS STUDENT ABSENTEEISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0021	C032401	HE000887	IS STUDENT TARDINESS A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0022	C032404	HE000890	ARE PHYSICAL CONFLICTS A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0023	C032407	HE000893	ARE RACIAL/CULT. CONFLICTS A PROBLEM IN SCHOOL	X	X	X
SCHL0024	C032408	HE000894	IS STUDENT HEALTH A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0025	C032409	HE002121	IS LACK OF PARENT INVLMNT A PROBLEM IN SCHOOL	X	X	X
SCHL0026	C032410	HE002122	IS STUDENT ALCOHOL USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0027	C032411	HE002123	IS STUDENT TOBACCO USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0028	C032412	HE002124	IS STUDENT DRUG USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0029	C032413	HE002125	ARE GANG ACTIVITIES A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0030	C032414	HE002126	IS STUDENT MISBEHAVIOR A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0031	C043101	ID100079	IS STUDENT CHEATING A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0032	C043102	ID100077	IS TEACHER ABSENTEEISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0033	C043103	ID100078	ARE PHYSICAL CONFLICTS BETWEEN STUDENTS/TEACHERS	X	X	X
SCHL0034	C043104	ID100080	IS VANDALISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0035	C032502	HE000897	TEACHER MORALE	X	X	X
SCHL0036	C032503	HE000898	STUDENT ATTITUDES TOWARD ACADEMIC ACHIEVEMENT	X	X	X
SCHL0037	C032505	HE000900	PARENT SUPPORT FOR STUDENT ACHIEVEMENT	X	X	X
SCHL0038	C032506	HE000901	REGARD FOR SCHOOL PROPERTY	X	X	X
SCHL0039	C043201	ID100081	TEACHERS' EXPECTATIONS FOR STUDENT ACHIEVEMENT	X	X	X
SCHL0040	C043301	ID100082	PERCENT STUDENT BODY ABSENT AVERAGE DAY	X	X	X
SCHL0041	C043401	ID100389	PERCENT TEACHING STAFF ABSENT AVERAGE DAY	X	X	X
SCHL0042	C043501	ID100390	ENROLLMENT LAST YEAR COMPARED TO END OF SCHOOL YR	X	X	X
SCHL0043	C043601	HE002112	PERCENT STUDENTS HELD BACK AND REPEATING GRADE	X	X	X
SCHL0044	C043701	ID100391	PERCENT TEACHING STAFF LEFT BEFORE END OF YEAR	X	X	X
SCHL0045	C038301	HE002094	IS SCHOOL IN NATIONAL SCHOOL LUNCH PROGRAM	X	X	X
SCHL0046	C043801	ID100392	PERCENT ELIGIBLE NATIONAL SCHOOL LUNCH PROGRAM	X	X	X
SCHL0047	C043901	ID100393	DOES SCHOOL RECEIVE CHAPTER 1/TITLE I FUNDING	X	X	X
SCHL0048	C044001	ID100395	PERCENT STUDENTS RECEIVE CHAPTER1/TITLE I FUNDING	X	X	X
SCHL0049	C044002	ID100396	PERCENT STUDENTS RECEIVE REMEDIAL READING INSTRUCT	X	X	X
SCHL0050	C044003	ID100397	PERCENT STUDENTS RECEIVE REMEDIAL WRITING INSTRUCT	X	X	X
SCHL0051	C044004	ID100398	PERCENT STUDENTS IN GIFTED AND TALENTED PROGRAM	X	X	X
BACK0062	B003501	TB003501	MOTHER'S EDUCATION LEVEL	-	X	X
BACK0063	B003601	TB003601	FATHER'S EDUCATION LEVEL	-	X	X
SUBJ0028	R811010	TR810408	ASKED TO EXPLAIN UNDERSTANDING OF WHAT YOU READ	-	X	X
SUBJ0029	R811011	TR810409	ASKED TO DISCUSS INTERPRETATIONS OF WHAT YOU READ	-	X	X
SUBJ0030	R830201	LC000035	DO YOU HAVE ACCESS TO A SCHOOL/PUBLIC LIBRARY	-	X	X
SCHL0052	C044401	ID100400	8TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY	-	X	-
SCHL0053	C044402	ID100403	8TH GRADE ASSIGNED-HISTORY/SS BY ABILITY	-	X	-
SCHL0054	C043105	ID100086	IS STUDENT DROPOUT A PROBLEM IN YOUR SCHOOL	-	X	X
SCHL0055	C043106	ID100087	IS TEEN PREGNANCY A PROBLEM IN YOUR SCHOOL	-	X	X
BACK0064	B005501	TB005501	MAIN ACTIVITY YEAR FOLLOWING HIGH SCHOOL	-	-	X
SUBJ0031	R820201	WP000073	ENROLLED IN OR TOOK AN AP ENGLISH COURSE	-	-	X
SCHL0056	C044301	ID100404	12TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY	-	-	X
SCHL0057	C044302	ID100405	12TH GR ASSIGNED- HISTORY/CIVICS/SS CLASS ABILITY	-	-	X
SCHL0058	C044101	ID100408	PERCENT LAST YEAR'S TWELFTH-GRADE CLASS GRADUATED	-	-	X
SCHL0059	C044201	ID100410	PERCENT GRADUATING CLASS-ATTEND TWO-YEAR COLLEGE	-	-	X
SCHL0060	C044202	ID100411	PERCENT GRADUATING CLASS-ATTEND FOUR-YEAR COLLEGE	-	-	X
TCHR0001	T067001	PJ000121	DO YOU TEACH READING	X	-	-
TCHR0002	T067002	PJ000122	DO YOU TEACH WRITING	X	-	-
TCHR0003	T067003	PJ000123	DO YOU TEACH LANGUAGE ARTS	X	-	-
TCHR0004	T067004	PJ000124	DO YOU TEACH SOCIAL STUDIES	X	-	-

Table F-2 (continued)
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0005	T067101	PJ000126	YEARS TOTAL TAUGHT ELEMENTARY LEVEL	X	-	-
TCHR0006	T067201	PJ000128	YEARS TOTAL TAUGHT READING	X	-	-
TCHR0007	T067202	PJ000129	YEARS TOTAL TAUGHT WRITING	X	-	-
TCHR0008	T067203	PJ000130	YEARS TOTAL TAUGHT LANGUAGE ARTS	X	-	-
TCHR0009	T067204	PJ000131	YEARS TOTAL TAUGHT HISTORY	X	-	-
TCHR0010	T067205	PJ000132	YEARS TOTAL TAUGHT SOCIAL STUDIES	X	-	-
TCHR0011	T067206	PJ000133	YEARS TOTAL TAUGHT CIVICS	X	-	-
TCHR0012	T067301	PJ000134	MAIN ASSIGNMENT FIELD	X	X	-
TCHR0013	T056201	HE002551	TEACHING CERTIF IN THIS STATE IN MAIN FIELD	X	X	-
TCHR0014	T056301	HE001012	HIGHEST ACADEMIC DEGREE YOU HOLD	X	X	-
TCHR0015	T067501	PJ000138	UNDERGRAD MAJOR/MINOR-ELEMENTARY EDUCATION	X	X	-
TCHR0016	T067502	PJ000139	UNDERGRAD MAJOR/MINOR-SECONDARY EDUCATION	X	X	-
TCHR0017	T067503	PJ000140	UNDERGRAD MAJOR/MINOR-SPECIAL EDUCATION	X	X	-
TCHR0018	T067504	PJ000141	UNDERGRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL	X	X	-
TCHR0019	T067505	PJ000142	UNDERGRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION	X	X	-
TCHR0020	T067506	PJ000143	UNDERGRAD MAJOR/MINOR-CURRICULUM & SUPERVISION	X	X	-
TCHR0021	T067507	PJ000144	UNDERGRAD MAJOR/MINOR-COUNSELING	X	X	-
TCHR0022	T067508	PJ000145	UNDERGRAD MAJOR/MINOR-ENGLISH	X	X	-
TCHR0023	T067509	PJ000146	UNDERGRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS	X	X	-
TCHR0024	T067510	PJ000147	UNDERGRAD MAJOR/MINOR-HISTORY	X	X	-
TCHR0025	T067511	PJ000148	UNDERGRAD MAJOR/MINOR-POLITICAL SCIENCE	X	X	-
TCHR0026	T067512	PJ000149	UNDERGRAD MAJOR/MINOR-OTHER	X	X	-
TCHR0027	T067601	PJ000151	GRAD MAJOR/MINOR-ELEMENTARY EDUCATION	X	X	-
TCHR0028	T067602	PJ000152	GRAD MAJOR/MINOR-SECONDARY EDUCATION	X	X	-
TCHR0029	T067603	PJ000153	GRAD MAJOR/MINOR-SPECIAL EDUCATION	X	X	-
TCHR0030	T067604	PJ000154	GRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL	X	X	-
TCHR0031	T067605	PJ000155	GRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION	X	X	-
TCHR0032	T067606	PJ000156	GRAD MAJOR/MINOR-CURRICULUM AND INSTRUCTION	X	X	-
TCHR0033	T067607	PJ000157	GRAD MAJOR/MINOR-COUNSELING	X	X	-
TCHR0034	T067608	PJ000158	GRAD MAJOR/MINOR-ENGLISH	X	X	-
TCHR0035	T067609	PJ000159	GRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS	X	X	-
TCHR0036	T067610	PJ000160	GRAD MAJOR/MINOR-HISTORY	X	X	-
TCHR0037	T067611	PJ000161	GRAD MAJOR/MINOR-POLITICAL SCIENCE	X	X	-
TCHR0038	T067612	PJ000162	GRAD MAJOR/MINOR-OTHER	X	X	-
TCHR0039	T067701	ID100358	LAST 12 MOS, PROF DEV-READING AND WRITING	X	X	-
TCHR0040	T067702	ID100147	LAST 12 MOS, PROF DEV-SOCIAL STUDIES	X	X	-
TCHR0041	T067801	PJ000169	PREPARED IN THE USE OF TELECOMMUNICATIONS	X	X	-
TCHR0042	T067802	ID100360	PREPARED IN THE USE OF COMPUTERS	X	X	-
TCHR0043	T067803	PJ000171	PREPARED IN COOPERATIVE GROUP INSTRUCTION	X	X	-
TCHR0044	T067804	PJ000176	PREPARED IN TEACHING STUDENTS-DIFFERENT CULTURES	X	X	-
TCHR0045	T067805	PJ000177	PREPARED IN TEACHING STUDENTS WHO ARE LEP	X	X	-
TCHR0046	T067806	PJ000178	PREPARED IN TEACHING STUDENTS WITH DISABILITIES	X	X	-
TCHR0047	T067807	PJ000179	PREPARED IN CLASSROOM MANAGEMENT AND ORGANIZATION	X	X	-
TCHR0048	T041201	HE001022	AVAILABILITY OF RESOURCES	X	X	-
TCHR0049	T067901	ID100417	HOW WELL PREPARED TO TEACH READING	X	X	-
TCHR0050	T067902	ID100418	HOW WELL PREPARED TO TEACH WRITING	X	X	-
TCHR0051	T068001	PJ000182	PREPARED IN LIT-BASED READING INSTRUCTION	X	X	-
TCHR0052	T068002	PJ000183	PREPARED IN CONTENT AREA READING	X	X	-
TCHR0053	T068003	PJ000184	PREPARED IN COMBINING RDG AND WRITING	X	X	-
TCHR0054	T068004	PJ000185	PREPARED IN WHOLE LANGUAGE APPROACH TO TEACH RDG	X	X	-
TCHR0055	T068005	PJ000186	PREPARED IN PHONICS IN TEACHING READING	X	X	-
TCHR0056	T068006	PJ000187	PREPARED IN TEACHING MULTICULTURAL LITERATURE	X	X	-
TCHR0057	T068007	PJ000188	PREPARED IN COMPUTER SOFTWARE FOR TEACHING RDG	X	X	-
TCHR0058	T068008	PJ000190	PREPARED IN WRITING ACROSS THE CURRICULUM	X	X	-

Table F-2 (continued)
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0059	T068009	PJ000191	PREPARED IN USING COMPUTER SOFTWARE TO TEACH WRITG	X	X	-
TCHR0060	T068010	PJ000192	PREPARED IN TEACHING SPELLING, GRAMMAR, MECHANICS	X	X	-
TCHR0061	T068101	ID100368	AVERAGE READING CLASS SIZE	X	-	-
TCHR0062	T046101	HE001284	CLASS ASSIGNMENT BY ABILITY	X	X	-
TCHR0063	T046201	HE001201	ABILITY LEVEL OF STUDENTS	X	X	-
TCHR0064	T068201	PJ000196	HOW MUCH CLASS TIME PER DAY-READING INSTRUCTION	X	X	-
TCHR0065	T068301	PJ000198	BASIS FOR CREATING READING INSTRUCTIONAL GROUPS	X	X	-
TCHR0066	T068401	PJ000199	CLASS DIVIDED INTO HOW MANY INSTRUCTIONAL GROUPS	X	X	-
TCHR0067	T068601	PJ000195	WRITING ABILITY LEVEL OF CLASS	X	X	-
TCHR0068	T068701	PJ000197	EACH WEEK, TIME SPENT INSTRUCTING/HELPING-WRITING	X	X	-
TCHR0069	T068801	PJ000202	HOW OFTEN USE CHILDREN'S NEWSPAPERS/MAGAZINES	X	X	-
TCHR0070	T068802	PJ000203	HOW OFTEN USE READING KITS TO TEACH READING	X	X	-
TCHR0071	T068803	PJ000204	HOW OFTEN USE COMPUTER SOFTWARE FOR READING INSTR	X	X	-
TCHR0072	T068804	PJ000205	HOW OFTEN USE BOOKS (NOVELS, POETRY, NONFICTION)	X	X	-
TCHR0073	T068805	PJ000206	HOW OFTEN USE MATERIALS FROM OTHER SUBJECTS	X	X	-
TCHR0074	T068901	ID100374	WHAT TYPE OF MATERIALS FORM CORE READING PROGRAM	X	X	-
TCHR0075	T069001	PJ000207	AVAILABILITY OF COMPUTERS FOR USE IN CLASS	X	X	-
TCHR0076	T069101	PJ000208	PROPORTION TIME SPENT ON RDG FOR LIT EXPERIENCE	X	X	-
TCHR0077	T069102	PJ000210	PROPORTION TIME SPENT ON RDG TO GAIN INFORMATION	X	X	-
TCHR0078	T069103	PJ000211	PROPORTION TIME SPENT ON RDG TO PERFORM A TASK	X	X	-
TCHR0079	T069201	PJ000213	PROPORTION TIME SPENT ON NARRATIVE WRITING	X	X	-
TCHR0080	T069202	PJ000214	PROPORTION TIME SPENT ON INFORMATIVE WRITING	X	X	-
TCHR0081	T069203	PJ000215	PROPORTION TIME SPENT ON PERSUASIVE WRITING	X	X	-
TCHR0082	T069301	PJ000217	DO YOU USE GRAMMAR OR SKILL-BASED INSTRUCTION	X	X	-
TCHR0083	T069302	PJ000218	DO YOU USE WRITING PROCESS INSTRUCTION	X	X	-
TCHR0084	T069303	PJ000219	DO YOU INTEGRATE READING AND WRITING INSTRUCTION	X	X	-
TCHR0085	T069304	PJ000220	DO YOU USE WRITING ABOUT LITERATURE	X	X	-
TCHR0086	T069305	PJ000221	DO YOU USE WRITING ACROSS OTHER SUBJECT AREAS	X	X	-
TCHR0087	T069401	PJ000223	HOW OFTEN STUDENTS DO SPELLING, PUNCTUATION, GRAMM	X	X	-
TCHR0088	T069402	PJ000224	HOW OFTEN STUDENTS WORK ON WRITING PROCESS	X	X	-
TCHR0089	T069403	PJ000225	HOW OFTEN STUDENTS WRITE IN A LOG/JOURNAL	X	X	-
TCHR0090	T069404	PJ000226	HOW OFTEN PARENTS SIGN/REVIEW STUDENTS' HOMEWORK	X	X	-
TCHR0091	T069405	PJ000227	HOW OFTEN ASSIGN HOMEWORK TO DO WITH PARENTS	X	X	-
TCHR0092	T069501	PJ000228	EXPECTED TIME SPENT ON WRITING ASSIGNMENTS/WEEK	X	X	-
TCHR0093	T069601	PJ000193	THIS YEAR, PROJECTS TO DO/SHARE WITH PARENTS	X	X	-
TCHR0094	T069701	PJ000231	HOW OFTEN ASK STUDENTS TO READ ALOUD	X	X	-
TCHR0095	T069702	PJ000233	HOW OFTEN ASK STUDENTS-DISCUSS WHAT WAS READ	X	X	-
TCHR0096	T069703	PJ000234	HOW OFTEN ASK STUDENTS- WRITE ABOUT WHAT WAS READ	X	X	-
TCHR0097	T069704	PJ000235	HOW OFTEN ASK STUDENTS-WRITE IN WORKSHEET/BOOK	X	X	-
TCHR0098	T069705	PJ000232	HOW OFTEN ASK STUDENTS-READ SILENTLY	X	X	-
TCHR0099	T069706	PJ000236	HOW OFTEN GIVE STUDENTS TIME TO READ BOOKS CHOSEN	X	X	-
TCHR0100	T069707	PJ000237	HOW OFTEN ASK STUDENTS-GROUP ACTIVITY/PROJECT	X	X	-
TCHR0101	T069708	ID100371	HOW OFTEN ASK STUDENTS-DISCUSS INTERPRETATIONS	X	X	-
TCHR0102	T069709	PJ000238	HOW OFTEN ASK STUDENTS-EXPLAIN/SUPPORT WHAT READ	X	X	-
TCHR0103	T069710	ID100372	HOW OFTEN GIVE READING QUIZZES OR TESTS	X	X	-
TCHR0104	T069711	PJ000239	HOW OFTEN WATCH MOVIES, VIDEOS, FILMSTRIPS, TV, CD	X	X	-
TCHR0105	T069712	PJ000229	HOW OFTEN HELP STUDENTS UNDERSTAND NEW WORDS	X	X	-
TCHR0106	T069713	PJ000240	HOW OFTEN ASK STUDENTS-ANSWER QUESTIONS IN WRITING	X	X	-
TCHR0107	T069714	PJ000241	HOW OFTEN ASK STUDENTS-PREDICT OUTCOME OF READING	X	X	-
TCHR0108	T069715	PJ000242	HOW OFTEN ASK STUDENTS-MAKE GENERALIZATIONS	X	X	-
TCHR0109	T069716	PJ000243	HOW OFTEN ASK STUDENTS-DESCRIBE STYLE/STRUCTURE	X	X	-
TCHR0110	T071801	PJ000245	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC	X	-	-
TCHR0111	T071802	PJ000246	HOW OFTEN STUDENTS PLAN THEIR WRITING	X	-	-
TCHR0112	T071803	PJ000247	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE	X	-	-

Table F-2 (continued)
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0113	T071804	PJ000248	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE	X	-	-
TCHR0114	T071805	PJ000249	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT	X	-	-
TCHR0115	T071806	PJ000250	HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT	X	-	-
TCHR0116	T071807	PJ000251	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING	X	-	-
TCHR0117	T071808	PJ000252	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING	X	-	-
TCHR0118	T071809	PJ000253	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR	X	-	-
TCHR0119	T071810	PJ000254	HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY	X	-	-
TCHR0120	T071811	PJ000255	HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION	X	-	-
TCHR0121	T071812	PJ000256	HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC	X	-	-
TCHR0122	T071813	PJ000257	HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT	X	-	-
TCHR0123	T069901	PJ000259	HOW OFTEN WRITING ASSIGNMENTS-LESS THAN ONE PAGE	X	X	-
TCHR0124	T069902	PJ000260	HOW OFTEN WRITING ASSIGNMENTS-ONE TO TWO PAGES	X	X	-
TCHR0125	T069903	PJ000261	HOW OFTEN WRITING ASSIGNMENTS-THREE OR MORE PAGES	X	X	-
TCHR0126	T070001	PJ000263	HOW OFTEN STUDENTS USE COMPUTER-SPELL, PUNC, GRAM	X	X	-
TCHR0127	T070002	PJ000264	HOW OFTEN STUDENTS USE COMPUTERS-WRITE DRAFTS	X	X	-
TCHR0128	T070003	PJ000265	HOW OFTEN STUDENTS USE COMPUTERS-READ STORIES	X	X	-
TCHR0129	T070101	ID100373	HOW OFTEN READING ASSESSED-MULTIPLE-CHOICE TESTS	X	X	-
TCHR0130	T070102	ID100375	HOW OFTEN READING ASSESSED-SHORT-ANSWER TESTS	X	X	-
TCHR0131	T070103	PJ000269	HOW OFTEN READ ASSESSED-PARAGRAPH WRITTEN RESPONSE	X	X	-
TCHR0132	T070104	PJ000270	HOW OFTEN STUDENTS ASSESSED-INDIVIDUAL/GROUP PROJ	X	X	-
TCHR0133	T070105	PJ000272	HOW OFTEN STUDENTS ASSESSED-READING PORTFOLIOS	X	X	-
TCHR0134	T070106	PJ000271	HOW OFTEN STUDENTS ASSESSED-ESSAYS/PAPERS ASSIGNED	X	X	-
TCHR0135	T070107	PJ000273	HOW OFTEN STUDENTS ASSESSED-ORAL READING	X	X	-
TCHR0136	T070201	PJ000275	HOW OFTEN WRITING ASSESSED-MULTIPLE-CHOICE TESTS	X	X	-
TCHR0137	T070202	PJ000276	HOW OFTEN WRITING ASSESSED-PARAGRAPH WRITTEN	X	X	-
TCHR0138	T070203	PJ000277	HOW OFTEN WRITING ASSESSED-ESSAYS, REPORTS	X	X	-
TCHR0139	T070204	PJ000278	HOW OFTEN WRITING ASSESSED-WRITING PORTFOLIOS	X	X	-
TCHR0140	T070301	PJ000280	HOW IMPORTANT TO GRADE-SPELLING, GRAMMAR, PUNC	X	X	-
TCHR0141	T070302	PJ000281	HOW IMPORTANT TO GRADE-ORGANIZATION/COHERENCE	X	X	-
TCHR0142	T070303	PJ000282	HOW IMPORTANT TO GRADE-QUALITY/CREATIVITY OF IDEAS	X	X	-
TCHR0143	T070304	PJ000283	HOW IMPORTANT TO GRADE-LENGTH OF PAPERS	X	X	-
TCHR0144	T070305	PJ000284	HOW IMPORTANT TO GRADE-ACCOMPLISH WRITING PURPOSE	X	X	-
TCHR0145	T071601	PJ000330	DO YOU TEACH READING	-	X	-
TCHR0146	T071602	PJ000331	DO YOU TEACH WRITING	-	X	-
TCHR0147	T071603	PJ000332	DO YOU TEACH ENGLISH	-	X	-
TCHR0148	T071604	PJ000333	DO YOU TEACH-OTHER	-	X	-
TCHR0149	T040301	HE001007	YEARS TOTAL TAUGHT ELEMENTARY OR SECONDARY	-	X	-
TCHR0150	T071701	PJ000335	YEARS TOTAL TAUGHT READING	-	X	-
TCHR0151	T071702	PJ000336	YEARS TOTAL TAUGHT WRITING	-	X	-
TCHR0152	T071703	PJ000337	YEARS TOTAL TAUGHT ENGLISH	-	X	-
TCHR0153	T071704	PJ000338	YEARS TOTAL TAUGHT- OTHER	-	X	-
TCHR0154	T067703	PJ000167	LAST 12 MOS, PROF DEV-LITERATURE	-	X	-
TCHR0155	T068501	ID100370	ARE STUDENTS ASSIGNED TO THIS CLASS BY ABILITY	-	X	-
TCHR0156	T069801	PJ000245	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC	-	X	-
TCHR0157	T069802	PJ000246	HOW OFTEN STUDENTS PLAN THEIR WRITING	-	X	-
TCHR0158	T069803	PJ000247	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE	-	X	-
TCHR0159	T069804	PJ000248	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE	-	X	-
TCHR0160	T069805	PJ000249	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT	-	X	-
TCHR0161	T069806	PJ000250	HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT	-	X	-
TCHR0162	T069807	PJ000251	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING	-	X	-
TCHR0163	T069808	PJ000252	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING	-	X	-
TCHR0164	T069809	PJ000253	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR	-	X	-
TCHR0165	T069810	PJ000254	HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY	-	X	-
TCHR0166	T069811	PJ000255	HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION	-	X	-

Table F-2 (continued)
Summary Table of the 1998 Reading Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4 8 12
TCHR0167	T069812	PJ000256	HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC	- X -
TCHR0168	T069813	PJ000257	HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT	- X -
TCHR0169	TCSIZE		WHAT IS THE NUMBER OF STUDENTS IN EACH CLASS? (8TH GRADE)	- X -

Table F-3
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
BACK0001	BKSER		GRAND MEAN	X	X	X
BACK0002	DSEX		DERIVED SEX	X	X	X
BACK0003	DRACE		DERIVED RACE/ETHNICITY	X	X	X
BACK0004	B003101	TB003101	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND?	X	X	X
BACK0005	TOL7		TOL 7 - TYPE OF LOCATION	X	X	X
BACK0006	TOL5		TYPE OF LOCALE (5 CATEGORIES)	X	X	X
BACK0007	PARED2		PARENTS' HIGHEST LEVEL OF EDUCATION	X	X	X
BACK0008	REGION		REGION OF THE COUNTRY	X	X	X
BACK0009	SCHTYPE		SCHOOL TYPE	X	X	X
BACK0010	RACE		RACE	X	X	X
BACK0011	IEP		INDIVIDUALIZED EDUCATION PLAN	X	X	X
BACK0012	LEP		LIMITED ENGLISH PROFICIENCY	X	X	X
BACK0013	TITLE1		TITLE 1: (BOOK COVER)	X	X	X
BACK0014	SLUNCH		DO YOU RECEIVE A FREE OR REDUCED-PRICE LUNCH?	X	X	X
BACK0015	B013901	ID100323	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (LINEAR)	X	X	X
BACK0016	B013901	ID100323	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (QUADRATIC)	X	X	X
BACK0017	B006601	TB006601	HOMEWORK ASSIGNED?: BASED ON TIME SPENT ON HOMEWORK EACH DAY.	X	X	X
BACK0018	B006601	TB006601	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY? (LINEAR)	X	X	X
BACK0019	B006601	TB006601	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY (QUADRATIC)	X	X	X
BACK0020	HOMEEN3		NUMBER OF ITEMS IN THE HOME (NEWSPAPER, > 25 BOOKS, ENCYCLOPEDIA, MAGAZINES) (DERIVED)	X	X	X
BACK0021	B001101	TB001101	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?	X	X	X
BACK0022	B001101	TB001101	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?	X	X	X
BACK0023	ACCOM		STUDENTS ACCOMMODATION STATUS	X	X	X
BACK0024	INTERACT		INTERACTION: GENDER BY RACE/ETHNICITY	X	X	X
BACK0025	INTERACT		INTERACTION: GENDER BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0026	INTERACT		INTERACTION: GENDER BY PARENTS' EDUCATION	X	X	X
BACK0027	INTERACT		INTERACTION: GENDER BY SCHOOL TYPE	X	X	X
BACK0028	INTERACT		INTERACTION: RACE/ETHNICITY BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0029	INTERACT		INTERACTION: RACE/ETHNICITY BY PARENTS' EDUCATION	X	X	X
BACK0030	INTERACT		INTERACTION: RACE/ETHNICITY BY SCHOOL TYPE	X	X	X
BACK0031	INTERACT		INTERACTION: PARENT'S EDUCATION BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0032	INTERACT		INTERACTION: TYPE OF LOCALE (7 CATEGORIES) BY SCHOOL TYPE	X	X	X
BACK0033	INTERACT		INTERACTION: PARENTS' EDUCATION BY SCHOOL TYPE	X	X	X
BACK0034	INTERACT		INTERACTION: ACCOMMODATED BY GENDER	X	X	X
BACK0035	INTERACT		INTERACTION: ACCOMMODATED BY RACE/ETHNICITY	X	X	X
BACK0036	INTERACT		INTERACTION: ACCOMMODATED BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0037	INTERACT		INTERACTION: ACCOMMODATED BY PARENTS' EDUCATION ALL GRADES	X	X	X
BACK0038	INTERACT		INTERACTION: ACCOMMODATED BY SCHOOL TYPE	X	X	X
BACK0039	INTERACT		INTERACTION: ACCOMMODATED BY IEP	X	X	X
BACK0040	INTERACT		INTERACTION: ACCOMMODATED BY LEP	X	X	X
BACK0041	MA96FLG		MSA/NON-MSA	-	-	-
BACK0042	MONSTUD		STATE ADMINISTRATION MONITORED/UNMONITORED SESSION	-	-	-
BACK0043	INTERACT		INTERACTION: SCHOOL TYPE BY MONITORED/UNMONITORED SESSION	-	-	-
BACK0044	RPTSAMP		REPORTING SAMPLE	X	X	X
BACK0045	DISTRPT		STATE/DISTRICT	-	-	-
BACK0046	B003001	TB003001	WHICH RACE/ETHNICITY BEST DESCRIBES YOU	X	X	X
BACK0047	B003101	TB003101	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND	X	X	X
BACK0048	B013001	ID100333	HOW LONG LIVED IN UNITED STATES	X	X	X
BACK0049	B013101	ID100322	HOW OFTEN OTHER THAN ENGLISH SPOKEN AT HOME	X	X	X
BACK0050	B013201	ID100314	MOTHER GRADUATED HIGH SCHOOL	X	X	X
BACK0051	B013301	ID100315	MOTHER HAD SOME EDUCATION AFTER HIGH SCHOOL	X	X	X

Table F-3 (continued)
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
BACK0052	B013401	ID100316	MOTHER GRADUATED COLLEGE	X	X	X
BACK0053	B013501	ID100317	FATHER GRADUATED HIGH SCHOOL	X	X	X
BACK0054	B013601	ID100318	FATHER HAD SOME EDUCATION AFTER HIGH SCHOOL	X	X	X
BACK0055	B013701	ID100319	FATHER GRADUATED COLLEGE	X	X	X
BACK0056	B000901	TB000901	DOES YOUR FAMILY GET A NEWSPAPER REGULARLY	X	X	X
BACK0057	B000903	TB000903	IS THERE AN ENCYCLOPEDIA IN YOUR HOME	X	X	X
BACK0058	B013801	ID100334	HOW MANY BOOKS ARE IN YOUR HOME	X	X	X
BACK0059	B000905	TB000905	DOES YOUR FAMILY GET MAGAZINES REGULARLY	X	X	X
BACK0060	B013901	ID100323	HOURS OF TV/VIDEO WATCHED ON SCHOOL DAYS	X	X	X
BACK0061	B006601	TB006601	TIME SPENT ON HOMEWORK EACH DAY	X	X	X
BACK0062	B001101	TB001101	HOW MANY PAGES READ IN SCHOOL AND FOR HOMEWORK	X	X	X
BACK0063	B014001	ID100324	DAYS ABSENT FROM SCHOOL LAST MONTH	X	X	X
BACK0064	B007301	HE000712	TIMES CHANGED SCHOOLS IN PAST TWO YEARS	X	X	X
BACK0065	B007401	HE000717	HOW OFTEN DISCUSS STUDIES AT HOME	X	X	X
BACK0066	B014101	ID100325	HOW OFTEN USE COMPUTER AT HOME FOR SCHOOLWORK	X	X	X
SUBJ0001	W803001	HE000729	HOW HARD TRIED ON THIS WRITING TEST THAN ON OTHERS	X	X	X
SUBJ0002	W803101	HE000730	HOW IMPORTANT TO DO WELL ON THIS WRITING TEST	X	X	X
SUBJ0003	W803201	HE000731	HOW OFTEN TAKE ESSAY TEST FOR WHOLE CLASS PERIOD	X	X	X
SUBJ0004	W803301	ID100342	MY FRIENDS MAKE FUN OF PEOPLE WHO TRY TO DO WELL	X	X	X
SUBJ0005	W803302	ID100343	I HAVE FRIENDS TO TALK TO IF NEED HELP W/SCHOOL	X	X	X
SUBJ0006	W801901	ID100003	I LIKE TO WRITE	X	X	X
SUBJ0007	W801902	ID100004	I AM GOOD AT WRITING	X	X	X
SUBJ0008	W802001	ID100335	TEACHER TALKS ABOUT WHAT YOU ARE WRITING	X	X	X
SUBJ0009	W802101	ID100336	TEACHER ASKS TO WRITE MORE THAN ONE DRAFT OF PAPER	X	X	X
SUBJ0010	W802201	ID100337	TEACHER ASKS TO CONTRIBUTE WRITING TO A COLLECTION	X	X	X
SUBJ0011	W802301	HE000484	DO SPELLING, PUNCTUATION, GRAMMAR EXERCISES	X	X	X
SUBJ0012	W802302	ID100011	HOW OFTEN WRITE A STORY OR REPORT	X	X	X
SUBJ0013	W802303	HE000723	HOW OFTEN WORK IN PAIRS/SMALL GROUPS-WRITING	X	X	X
SUBJ0014	W802304	HE000724	HOW OFTEN WRITE IN A LOG/JOURNAL	X	X	X
SUBJ0015	W802401	ID100014	DO YOU/TEACHER SAVE WRITING-FOLDER/PORTFOLIO	X	X	X
SUBJ0016	W802501	HE000488	GRADE/WRITING-SPELLING, PUNCTUATION, GRAMMAR	X	X	X
SUBJ0017	W802502	HE000489	GRADE/WRITING-ORGANIZATION OF PAPER	X	X	X
SUBJ0018	W802503	HE000490	GRADE/WRITING-QUALITY, CREATIVITY OF IDEAS	X	X	X
SUBJ0019	W802504	HE000491	GRADE/WRITING-LENGTH OF PAPER	X	X	X
SUBJ0020	W802601	ID100022	ON COMPUTER-DO SPELLING, PUNCTUATION, GRAMMAR	X	X	X
SUBJ0021	W802602	ID100023	ON COMPUTER-WRITE IN A LOG/JOURNAL	X	X	X
SUBJ0022	W802603	ID100024	ON COMPUTER-WRITE DRAFTS/FINAL VERSIONS OF PAPERS	X	X	X
SCHL0001	C042501	ID100378	FOURTH GRADERS ASSIGNED TO CLASS BY ABILITY	X	-	-
SCHL0002	C042601	ID100041	HOW OFTEN STUDENTS RECEIVE READING INSTRUCTION	X	-	-
SCHL0003	C042602	ID100042	HOW OFTEN STUDENTS RECEIVE WRITING INSTRUCTION	X	-	-
SCHL0004	C042603	ID100043	HOW OFTEN STUDENTS RECEIVE SOC STUDIES INSTRUCT	X	-	-
SCHL0005	C042604	ID100044	HOW OFTEN STUDENTS RECEIVE COMPUTER USE INSTRUCT	X	-	-
SCHL0006	C042701	ID100379	DOES SCHOOL USE BLOCK SCHEDULING	X	X	X
SCHL0007	C042801	ID100380	ARE COMPUTERS AVAILABLE IN ALL CLASSROOMS	X	X	X
SCHL0008	C042802	HE000864	ARE COMPUTERS AVAILABLE IN COMPUTER LAB	X	X	X
SCHL0009	C042803	HE000866	ARE COMPUTERS AVAILABLE TO CLASSROOM WHEN NEEDED	X	X	X
SCHL0010	C042901	ID100381	HOW MANY COMPUTERS AVAILABLE TO STUDENTS	X	X	X
SCHL0011	C036601	LC000502	PRIMARY WAY LIBRARY IS STAFFED	X	X	X
SCHL0012	C043001	ID100069	PARENTS PARTICIPATE-PARENT-TEACHER ORG	X	X	X
SCHL0013	C043002	ID100070	PARENTS PARTICIPATE-OPEN HOUSE	X	X	X
SCHL0014	C043003	ID100071	PARTICIPATE-PARENT-TEACHER CONFERENCE	X	X	X
SCHL0015	C043004	ID100072	PARENTS PARTICIPATE-SCHOOL CURRICULUM DECISIONS	X	X	X
SCHL0016	C043005	ID100073	PARENTS PARTICIPATE-VOLUNTEER PROGRAMS	X	X	X
SCHL0017	C043006	ID100074	PARENTS PARTICIPATE-PARENTING-SKILLS PROGRAM	X	X	X

Table F-3 (continued)
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
SCHL0018	C043007	ID100076	PARENTS PARTICIPATE-SCHOOL ADVISORY COMMITTEES	X	X	X
SCHL0019	C043008	ID100077	PARENTS PARTICIPATE-CLASSROOM ASSISTANTS	X	X	X
SCHL0020	C032402	HE000888	IS STUDENT ABSENTEEISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0021	C032401	HE000887	IS STUDENT TARDINESS A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0022	C032404	HE000890	ARE PHYSICAL CONFLICTS A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0023	C032407	HE000893	ARE RACIAL/CULT. CONFLICTS A PROBLEM IN SCHOOL	X	X	X
SCHL0024	C032408	HE000894	IS STUDENT HEALTH A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0025	C032409	HE002121	IS LACK OF PARENT INVLMNT A PROBLEM IN SCHOOL	X	X	X
SCHL0026	C032410	HE002122	IS STUDENT ALCOHOL USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0027	C032411	HE002123	IS STUDENT TOBACCO USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0028	C032412	HE002124	IS STUDENT DRUG USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0029	C032413	HE002125	ARE GANG ACTIVITIES A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0030	C032414	HE002126	IS STUDENT MISBEHAVIOR A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0031	C043101	ID100079	IS STUDENT CHEATING A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0032	C043102	ID100077	IS TEACHER ABSENTEEISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0033	C043103	ID100078	ARE PHYSICAL CONFLICTS BETWEEN STUDENTS/TEACHERS	X	X	X
SCHL0034	C043104	ID100080	IS VANDALISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0035	C032502	HE000897	TEACHER MORALE	X	X	X
SCHL0036	C032503	HE000898	STUDENT ATTITUDES TOWARD ACADEMIC ACHIEVEMENT	X	X	X
SCHL0037	C032505	HE000900	PARENT SUPPORT FOR STUDENT ACHIEVEMENT	X	X	X
SCHL0038	C032506	HE000901	REGARD FOR SCHOOL PROPERTY	X	X	X
SCHL0039	C043201	ID100081	TEACHERS' EXPECTATIONS FOR STUDENT ACHIEVEMENT	X	X	X
SCHL0040	C043301	ID100082	PERCENT STUDENT BODY ABSENT AVERAGE DAY	X	X	X
SCHL0041	C043401	ID100389	PERCENT TEACHING STAFF ABSENT AVERAGE DAY	X	X	X
SCHL0042	C043501	ID100390	ENROLLMENT LAST YEAR COMPARED TO END OF SCHOOL YR	X	X	X
SCHL0043	C043601	HE002112	PERCENT STUDENTS HELD BACK AND REPEATING GRADE	X	X	X
SCHL0044	C043701	ID100391	PERCENT TEACHING STAFF LEFT BEFORE END OF YEAR	X	X	X
SCHL0045	C038301	HE002094	IS SCHOOL IN NATIONAL SCHOOL LUNCH PROGRAM	X	X	X
SCHL0046	C043801	ID100392	PERCENT ELIGIBLE NATIONAL SCHOOL LUNCH PROGRAM	X	X	X
SCHL0047	C043901	ID100393	DOES SCHOOL RECEIVE CHAPTER 1/TITLE I FUNDING	X	X	X
SCHL0048	C044001	ID100395	PERCENT STUDENTS RECEIVE CHAPTER1/TITLE I FUNDING	X	X	X
SCHL0049	C044002	ID100396	PERCENT STUDENTS RECEIVE REMEDIAL READING INSTRUCT	X	X	X
SCHL0050	C044003	ID100397	PERCENT STUDENTS RECEIVE REMEDIAL WRITING INSTRUCT	X	X	X
SCHL0051	C044004	ID100398	PERCENT STUDENTS IN GIFTED AND TALENTED PROGRAM	X	X	X
BACK0067	B014201	ID100248	HOW MUCH EDUCATION DO YOU EXPECT TO RECEIVE	-	X	-
SUBJ0023	W802701	TW800301	HOW OFTEN PAPERS ASSIGED-ONE TO TWO PARAGRAPHS	-	X	X
SUBJ0024	W802702	TW800302	HOW OFTEN PAPERS ASSIGNED-ONE TO TWO PAGES	-	X	X
SUBJ0025	W802703	TW800303	HOW OFTEN PAPERS ASSIGNED-THREE OR MORE PAGES	-	X	X
SUBJ0026	W802801	HE000431	HOW OFTEN WRITING ASSIGNED-REPORT OR SUMMARY	-	X	X
SUBJ0027	W802802	HE000432	HOW OFTEN WRITING ASSIGNED-ESSAY/THEME TO ANALYZE	-	X	X
SUBJ0028	W802803	HE000512	HOW OFTEN WRITING ASSIGNED-ESSAY/LETTER- PERSUADE	-	X	X
SUBJ0029	W802804	TW800503	HOW OFTEN WRITING ASSIGNED-STORY/NARRATIVE	-	X	X
SUBJ0030	W802901	ID100035	HOW OFTEN ASKED TO PLAN YOUR WRITING	-	X	X
SUBJ0031	W802902	ID100036	HOW OFTEN ASKED TO MAKE FORMAL OUTLINE FIRST	-	X	X
SUBJ0032	W802903	ID100037	HOW OFTEN ASKED TO DEFINE PURPOSE AND AUDIENCE	-	X	X
SUBJ0033	W802904	ID100038	HOW OFTEN ASKED TO USE SOURCES OTHER THAN TEXTBOOK	-	X	X
SCHL0052	C044401	ID100400	8TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY	-	X	-
SCHL0053	C044402	ID100403	8TH GRADE ASSIGNED-HISTORY/SS BY ABILITY	-	X	-
SCHL0054	C043105	ID100086	IS STUDENT DROPOUT A PROBLEM IN YOUR SCHOOL	-	X	X
SCHL0055	C043106	ID100087	IS TEEN PREGNANCY A PROBLEM IN YOUR SCHOOL	-	X	X
BACK0068	B005501	TB005501	MAIN ACTIVITY YEAR FOLLOWING HIGH SCHOOL	-	-	X
BACK0069	B014301	ID100326	VOLUNTEER WORK IN YOUR COMMUNITY THIS YEAR	-	-	X
BACK0070	B014401	ID100332	HOW MANY HOURS/WEEK WORK JOB FOR PAY	-	-	X
SCHL0056	C044301	ID100404	12TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY	-	-	X

Table F-3 (continued)
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
SCHL0057	C044302	ID100405	12TH GR ASSIGNED- HISTORY/CIVICS/SS CLASS ABILITY	-	-	X
SCHL0058	C044101	ID100408	PERCENT LAST YEAR'S TWELFTH-GRADE CLASS GRADUATED	-	-	X
SCHL0059	C044201	ID100410	PERCENT GRADUATING CLASS-ATTEND TWO-YEAR COLLEGE	-	-	X
SCHL0060	C044202	ID100411	PERCENT GRADUATING CLASS-ATTEND FOUR-YEAR COLLEGE	-	-	X
TCHR0001	T067001	PJ000121	DO YOU TEACH READING	X	-	-
TCHR0002	T067002	PJ000122	DO YOU TEACH WRITING	X	-	-
TCHR0003	T067003	PJ000123	DO YOU TEACH LANGUAGE ARTS	X	-	-
TCHR0004	T067004	PJ000124	DO YOU TEACH SOCIAL STUDIES	X	-	-
TCHR0005	T067101	PJ000126	YEARS TOTAL TAUGHT ELEMENTARY LEVEL	X	-	-
TCHR0006	T067201	PJ000128	YEARS TOTAL TAUGHT READING	X	-	-
TCHR0007	T067202	PJ000129	YEARS TOTAL TAUGHT WRITING	X	-	-
TCHR0008	T067203	PJ000130	YEARS TOTAL TAUGHT LANGUAGE ARTS	X	-	-
TCHR0009	T067204	PJ000131	YEARS TOTAL TAUGHT HISTORY	X	-	-
TCHR0010	T067205	PJ000132	YEARS TOTAL TAUGHT SOCIAL STUDIES	X	-	-
TCHR0011	T067206	PJ000133	YEARS TOTAL TAUGHT CIVICS	X	-	-
TCHR0012	T067301	PJ000134	MAIN ASSIGNMENT FIELD	X	X	-
TCHR0013	T056201	HE002551	TEACHING CERTIF IN THIS STATE IN MAIN FIELD	X	X	-
TCHR0014	T056301	HE001012	HIGHEST ACADEMIC DEGREE YOU HOLD	X	X	-
TCHR0015	T067501	PJ000138	UNDERGRAD MAJOR/MINOR-ELEMENTARY EDUCATION	X	X	-
TCHR0016	T067502	PJ000139	UNDERGRAD MAJOR/MINOR-SECONDARY EDUCATION	X	X	-
TCHR0017	T067503	PJ000140	UNDERGRAD MAJOR/MINOR-SPECIAL EDUCATION	X	X	-
TCHR0018	T067504	PJ000141	UNDERGRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL	X	X	-
TCHR0019	T067505	PJ000142	UNDERGRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION	X	X	-
TCHR0020	T067506	PJ000143	UNDERGRAD MAJOR/MINOR-CURRICULUM & SUPERVISION	X	X	-
TCHR0021	T067507	PJ000144	UNDERGRAD MAJOR/MINOR-COUNSELING	X	X	-
TCHR0022	T067508	PJ000145	UNDERGRAD MAJOR/MINOR-ENGLISH	X	X	-
TCHR0023	T067509	PJ000146	UNDERGRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS	X	X	-
TCHR0024	T067510	PJ000147	UNDERGRAD MAJOR/MINOR-HISTORY	X	X	-
TCHR0025	T067511	PJ000148	UNDERGRAD MAJOR/MINOR-POLITICAL SCIENCE	X	X	-
TCHR0026	T067512	PJ000149	UNDERGRAD MAJOR/MINOR-OTHER	X	X	-
TCHR0027	T067601	PJ000151	GRAD MAJOR/MINOR-ELEMENTARY EDUCATION	X	X	-
TCHR0028	T067602	PJ000152	GRAD MAJOR/MINOR-SECONDARY EDUCATION	X	X	-
TCHR0029	T067603	PJ000153	GRAD MAJOR/MINOR-SPECIAL EDUCATION	X	X	-
TCHR0030	T067604	PJ000154	GRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL	X	X	-
TCHR0031	T067605	PJ000155	GRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION	X	X	-
TCHR0032	T067606	PJ000156	GRAD MAJOR/MINOR-CURRICULUM AND INSTRUCTION	X	X	-
TCHR0033	T067607	PJ000157	GRAD MAJOR/MINOR-COUNSELING	X	X	-
TCHR0034	T067608	PJ000158	GRAD MAJOR/MINOR-ENGLISH	X	X	-
TCHR0035	T067609	PJ000159	GRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS	X	X	-
TCHR0036	T067610	PJ000160	GRAD MAJOR/MINOR-HISTORY	X	X	-
TCHR0037	T067611	PJ000161	GRAD MAJOR/MINOR-POLITICAL SCIENCE	X	X	-
TCHR0038	T067612	PJ000162	GRAD MAJOR/MINOR-OTHER	X	X	-
TCHR0039	T067701	ID100358	LAST 12 MOS, PROF DEV-READING AND WRITING	X	X	-
TCHR0040	T067702	ID100147	LAST 12 MOS, PROF DEV-SOCIAL STUDIES	X	X	-
TCHR0041	T067801	PJ000169	PREPARED IN THE USE OF TELECOMMUNICATIONS	X	X	-
TCHR0042	T067802	ID100360	PREPARED IN THE USE OF COMPUTERS	X	X	-
TCHR0043	T067803	PJ000171	PREPARED IN COOPERATIVE GROUP INSTRUCTION	X	X	-
TCHR0044	T067804	PJ000176	PREPARED IN TEACHING STUDENTS-DIFFERENT CULTURES	X	X	-
TCHR0045	T067805	PJ000177	PREPARED IN TEACHING STUDENTS WHO ARE LEP	X	X	-
TCHR0046	T067806	PJ000178	PREPARED IN TEACHING STUDENTS WITH DISABILITIES	X	X	-
TCHR0047	T067807	PJ000179	PREPARED IN CLASSROOM MANAGEMENT AND ORGANIZATION	X	X	-
TCHR0048	T041201	HE001022	AVAILABILITY OF RESOURCES	X	X	-
TCHR0049	T067901	ID100417	HOW WELL PREPARED TO TEACH READING	X	X	-
TCHR0050	T067902	ID100418	HOW WELL PREPARED TO TEACH WRITING	X	X	-

Table F-3 (continued)
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0051	T068001	PJ000182	PREPARED IN LIT-BASED READING INSTRUCTION	X	X	-
TCHR0052	T068002	PJ000183	PREPARED IN CONTENT AREA READING	X	X	-
TCHR0053	T068003	PJ000184	PREPARED IN COMBINING RDG AND WRITING	X	X	-
TCHR0054	T068004	PJ000185	PREPARED IN WHOLE LANGUAGE APPROACH TO TEACH RDG	X	X	-
TCHR0055	T068005	PJ000186	PREPARED IN PHONICS IN TEACHING READING	X	X	-
TCHR0056	T068006	PJ000187	PREPARED IN TEACHING MULTICULTURAL LITERATURE	X	X	-
TCHR0057	T068007	PJ000188	PREPARED IN COMPUTER SOFTWARE FOR TEACHING RDG	X	X	-
TCHR0058	T068008	PJ000190	PREPARED IN WRITING ACROSS THE CURRICULUM	X	X	-
TCHR0059	T068009	PJ000191	PREPARED IN USING COMPUTER SOFTWARE TO TEACH WRTG	X	X	-
TCHR0060	T068010	PJ000192	PREPARED IN TEACHING SPELLING, GRAMMAR, MECHANICS	X	X	-
TCHR0061	T068101	ID100368	AVERAGE READING CLASS SIZE	X	-	-
TCHR0062	T046101	HE001284	CLASS ASSIGNMENT BY ABILITY	X	X	-
TCHR0063	T046201	HE001201	ABILITY LEVEL OF STUDENTS	X	X	-
TCHR0064	T068201	PJ000196	HOW MUCH CLASS TIME PER DAY-READING INSTRUCTION	X	X	-
TCHR0065	T068301	PJ000198	BASIS FOR CREATING READING INSTRUCTIONAL GROUPS	X	X	-
TCHR0066	T068401	PJ000199	CLASS DIVIDED INTO HOW MANY INSTRUCTIONAL GROUPS	X	X	-
TCHR0067	T068601	PJ000195	WRITING ABILITY LEVEL OF CLASS	X	X	-
TCHR0068	T068701	PJ000197	EACH WEEK, TIME SPENT INSTRUCTING/HELPING-WRITING	X	X	-
TCHR0069	T068801	PJ000202	HOW OFTEN USE CHILDREN'S NEWSPAPERS/MAGAZINES	X	X	-
TCHR0070	T068802	PJ000203	HOW OFTEN USE READING KITS TO TEACH READING	X	X	-
TCHR0071	T068803	PJ000204	HOW OFTEN USE COMPUTER SOFTWARE FOR READING INSTR	X	X	-
TCHR0072	T068804	PJ000205	HOW OFTEN USE BOOKS (NOVELS, POETRY, NONFICTION)	X	X	-
TCHR0073	T068805	PJ000206	HOW OFTEN USE MATERIALS FROM OTHER SUBJECTS	X	X	-
TCHR0074	T068901	ID100374	WHAT TYPE OF MATERIALS FORM CORE READING PROGRAM	X	X	-
TCHR0075	T069001	PJ000207	AVAILABILITY OF COMPUTERS FOR USE IN CLASS	X	X	-
TCHR0076	T069101	PJ000208	PROPORTION TIME SPENT ON RDG FOR LIT EXPERIENCE	X	X	-
TCHR0077	T069102	PJ000210	PROPORTION TIME SPENT ON RDG TO GAIN INFORMATION	X	X	-
TCHR0078	T069103	PJ000211	PROPORTION TIME SPENT ON RDG TO PERFORM A TASK	X	X	-
TCHR0079	T069201	PJ000213	PROPORTION TIME SPENT ON NARRATIVE WRITING	X	X	-
TCHR0080	T069202	PJ000214	PROPORTION TIME SPENT ON INFORMATIVE WRITING	X	X	-
TCHR0081	T069203	PJ000215	PROPORTION TIME SPENT ON PERSUASIVE WRITING	X	X	-
TCHR0082	T069301	PJ000217	DO YOU USE GRAMMAR OR SKILL-BASED INSTRUCTION	X	X	-
TCHR0083	T069302	PJ000218	DO YOU USE WRITING PROCESS INSTRUCTION	X	X	-
TCHR0084	T069303	PJ000219	DO YOU INTEGRATE READING AND WRITING INSTRUCTION	X	X	-
TCHR0085	T069304	PJ000220	DO YOU USE WRITING ABOUT LITERATURE	X	X	-
TCHR0086	T069305	PJ000221	DO YOU USE WRITING ACROSS OTHER SUBJECT AREAS	X	X	-
TCHR0087	T069401	PJ000223	HOW OFTEN STUDENTS DO SPELLING, PUNCTUATION, GRAMM	X	X	-
TCHR0088	T069402	PJ000224	HOW OFTEN STUDENTS WORK ON WRITING PROCESS	X	X	-
TCHR0089	T069403	PJ000225	HOW OFTEN STUDENTS WRITE IN A LOG/JOURNAL	X	X	-
TCHR0090	T069404	PJ000226	HOW OFTEN PARENTS SIGN/REVIEW STUDENTS' HOMEWORK	X	X	-
TCHR0091	T069405	PJ000227	HOW OFTEN ASSIGN HOMEWORK TO DO WITH PARENTS	X	X	-
TCHR0092	T069501	PJ000228	EXPECTED TIME SPENT ON WRITING ASSIGNMENTS/WEEK	X	X	-
TCHR0093	T069601	PJ000193	THIS YEAR, PROJECTS TO DO/SHARE WITH PARENTS	X	X	-
TCHR0094	T069701	PJ000231	HOW OFTEN ASK STUDENTS TO READ ALOUD	X	X	-
TCHR0095	T069702	PJ000233	HOW OFTEN ASK STUDENTS-DISCUSS WHAT WAS READ	X	X	-
TCHR0096	T069703	PJ000234	HOW OFTEN ASK STUDENTS- WRITE ABOUT WHAT WAS READ	X	X	-
TCHR0097	T069704	PJ000235	HOW OFTEN ASK STUDENTS-WRITE IN WORKSHEET/BOOK	X	X	-
TCHR0098	T069705	PJ000232	HOW OFTEN ASK STUDENTS-READ SILENTLY	X	X	-
TCHR0099	T069706	PJ000236	HOW OFTEN GIVE STUDENTS TIME TO READ BOOKS CHOSEN	X	X	-
TCHR0100	T069707	PJ000237	HOW OFTEN ASK STUDENTS-GROUP ACTIVITY/PROJECT	X	X	-
TCHR0101	T069708	ID100371	HOW OFTEN ASK STUDENTS-DISCUSS INTERPRETATIONS	X	X	-
TCHR0102	T069709	PJ000238	HOW OFTEN ASK STUDENTS-EXPLAIN/SUPPORT WHAT READ	X	X	-
TCHR0103	T069710	ID100372	HOW OFTEN GIVE READING QUIZZES OR TESTS	X	X	-
TCHR0104	T069711	PJ000239	HOW OFTEN WATCH MOVIES, VIDEOS, FILMSTRIPS, TV, CD	X	X	-

Table F-3 (continued)
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0105	T069712	PJ000229	HOW OFTEN HELP STUDENTS UNDERSTAND NEW WORDS	X	X	-
TCHR0106	T069713	PJ000240	HOW OFTEN ASK STUDENTS-ANSWER QUESTIONS IN WRITING	X	X	-
TCHR0107	T069714	PJ000241	HOW OFTEN ASK STUDENTS-PREDICT OUTCOME OF READING	X	X	-
TCHR0108	T069715	PJ000242	HOW OFTEN ASK STUDENTS-MAKE GENERALIZATIONS	X	X	-
TCHR0109	T069716	PJ000243	HOW OFTEN ASK STUDENTS-DESCRIBE STYLE/STRUCTURE	X	X	-
TCHR0110	T071801	PJ000245	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC	X	-	-
TCHR0111	T071802	PJ000246	HOW OFTEN STUDENTS PLAN THEIR WRITING	X	-	-
TCHR0112	T071803	PJ000247	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE	X	-	-
TCHR0113	T071804	PJ000248	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE	X	-	-
TCHR0114	T071805	PJ000249	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT	X	-	-
TCHR0115	T071806	PJ000250	HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT	X	-	-
TCHR0116	T071807	PJ000251	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING	X	-	-
TCHR0117	T071808	PJ000252	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING	X	-	-
TCHR0118	T071809	PJ000253	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR	X	-	-
TCHR0119	T071810	PJ000254	HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY	X	-	-
TCHR0120	T071811	PJ000255	HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION	X	-	-
TCHR0121	T071812	PJ000256	HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC	X	-	-
TCHR0122	T071813	PJ000257	HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT	X	-	-
TCHR0123	T069901	PJ000259	HOW OFTEN WRITING ASSIGNMENTS-LESS THAN ONE PAGE	X	X	-
TCHR0124	T069902	PJ000260	HOW OFTEN WRITING ASSIGNMENTS-ONE TO TWO PAGES	X	X	-
TCHR0125	T069903	PJ000261	HOW OFTEN WRITING ASSIGNMENTS-THREE OR MORE PAGES	X	X	-
TCHR0126	T070001	PJ000263	HOW OFTEN STUDENTS USE COMPUTER-SPELL, PUNC, GRAM	X	X	-
TCHR0127	T070002	PJ000264	HOW OFTEN STUDENTS USE COMPUTERS-WRITE DRAFTS	X	X	-
TCHR0128	T070003	PJ000265	HOW OFTEN STUDENTS USE COMPUTERS-READ STORIES	X	X	-
TCHR0129	T070101	ID100373	HOW OFTEN READING ASSESSED-MULTIPLE-CHOICE TESTS	X	X	-
TCHR0130	T070102	ID100375	HOW OFTEN READING ASSESSED-SHORT-ANSWER TESTS	X	X	-
TCHR0131	T070103	PJ000269	HOW OFTEN READ ASSESSED-PARAGRAPH WRITTEN RESPONSE	X	X	-
TCHR0132	T070104	PJ000270	HOW OFTEN STUDENTS ASSESSED-INDIVIDUAL/GROUP PROJ	X	X	-
TCHR0133	T070105	PJ000272	HOW OFTEN STUDENTS ASSESSED-READING PORTFOLIOS	X	X	-
TCHR0134	T070106	PJ000271	HOW OFTEN STUDENTS ASSESSED-ESSAYS/PAPERS ASSIGNED	X	X	-
TCHR0135	T070107	PJ000273	HOW OFTEN STUDENTS ASSESSED-ORAL READING	X	X	-
TCHR0136	T070201	PJ000275	HOW OFTEN WRITING ASSESSED-MULTIPLE-CHOICE TESTS	X	X	-
TCHR0137	T070202	PJ000276	HOW OFTEN WRITING ASSESSED-PARAGRAPH WRITTEN	X	X	-
TCHR0138	T070203	PJ000277	HOW OFTEN WRITING ASSESSED-ESSAYS, REPORTS	X	X	-
TCHR0139	T070204	PJ000278	HOW OFTEN WRITING ASSESSED-WRITING PORTFOLIOS	X	X	-
TCHR0140	T070301	PJ000280	HOW IMPORTANT TO GRADE-SPELLING, GRAMMAR, PUNC	X	X	-
TCHR0141	T070302	PJ000281	HOW IMPORTANT TO GRADE-ORGANIZATION/COHERENCE	X	X	-
TCHR0142	T070303	PJ000282	HOW IMPORTANT TO GRADE-QUALITY/CREATIVITY OF IDEAS	X	X	-
TCHR0143	T070304	PJ000283	HOW IMPORTANT TO GRADE-LENGTH OF PAPERS	X	X	-
TCHR0144	T070305	PJ000284	HOW IMPORTANT TO GRADE-ACCOMPLISH WRITING PURPOSE	X	X	-
TCHR0145	T071601	PJ000330	DO YOU TEACH READING	-	X	-
TCHR0146	T071602	PJ000331	DO YOU TEACH WRITING	-	X	-
TCHR0147	T071603	PJ000332	DO YOU TEACH ENGLISH	-	X	-
TCHR0148	T071604	PJ000333	DO YOU TEACH-OTHER	-	X	-
TCHR0149	T040301	HE001007	YEARS TOTAL TAUGHT ELEMENTARY OR SECONDARY	-	X	-
TCHR0150	T071701	PJ000335	YEARS TOTAL TAUGHT READING	-	X	-
TCHR0151	T071702	PJ000336	YEARS TOTAL TAUGHT WRITING	-	X	-
TCHR0152	T071703	PJ000337	YEARS TOTAL TAUGHT ENGLISH	-	X	-
TCHR0153	T071704	PJ000338	YEARS TOTAL TAUGHT- OTHER	-	X	-
TCHR0154	T067703	PJ000167	LAST 12 MOS, PROF DEV-LITERATURE	-	X	-
TCHR0155	T068501	ID100370	ARE STUDENTS ASSIGNED TO THIS CLASS BY ABILITY	-	X	-
TCHR0156	T069801	PJ000245	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC	-	X	-
TCHR0157	T069802	PJ000246	HOW OFTEN STUDENTS PLAN THEIR WRITING	-	X	-
TCHR0158	T069803	PJ000247	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE	-	X	-

Table F-3 (continued)
Summary Table of the 1998 Writing Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0159	T069804	PJ000248	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE	-	X	-
TCHR0160	T069805	PJ000249	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT	-	X	-
TCHR0161	T069806	PJ000250	HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT	-	X	-
TCHR0162	T069807	PJ000251	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING	-	X	-
TCHR0163	T069808	PJ000252	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING	-	X	-
TCHR0164	T069809	PJ000253	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR	-	X	-
TCHR0165	T069810	PJ000254	HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY	-	X	-
TCHR0166	T069811	PJ000255	HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION	-	X	-
TCHR0167	T069812	PJ000256	HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC	-	X	-
TCHR0168	T069813	PJ000257	HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT	-	X	-
TCHR0169	TCSIZE		WHAT IS THE NUMBER OF STUDENTS IN EACH CLASS? (8TH GRADE)	-	X	-

Table F-4
Summary Table of the 1998 Civics Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
BACK0001	BKSER		GRAND MEAN	X	X	X
BACK0002	DSEX		DERIVED SEX	X	X	X
BACK0003	DRACE		DERIVED RACE/ETHNICITY	X	X	X
BACK0004	B003101	TB003101	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND?	X	X	X
BACK0005	TOL7		TOL 7 - TYPE OF LOCATION	X	X	X
BACK0006	TOL5		TYPE OF LOCALE (5 CATEGORIES)	X	X	X
BACK0007	PARED2		PARENTS' HIGHEST LEVEL OF EDUCATION, GRADE 4	X	X	X
BACK0008	REGION		REGION OF THE COUNTRY	X	X	X
BACK0009	SCHTYPE		SCHOOL TYPE	X	X	X
BACK0010	RACE		RACE	X	X	X
BACK0011	IEP		INDIVIDUALIZED EDUCATION PLAN	X	X	X
BACK0012	LEP		LIMITED ENGLISH PROFICIENCY	X	X	X
BACK0013	TITLE1		TITLE 1: (BOOK COVER)	X	X	X
BACK0014	SLUNCH		DO YOU RECEIVE A FREE OR REDUCED-PRICE LUNCH?	X	X	X
BACK0015	B013901	ID100323	HOW MUCH TELEVISION/VIDEO GAMES DO YOU USUALLY WATCH EACH DAY? (LINEAR)	X	X	X
BACK0016	B013901	ID100323	HOW MUCH TELEVISION/VIDEO GAMES DO YOU USUALLY WATCH EACH DAY? (QUADRATIC)	X	X	X
BACK0017	B006601	TB006601	HOMEWORK ASSIGNED?: BASED ON TIME SPENT ON HOMEWORK EACH DAY.	X	X	X
BACK0018	B006601	TB006601	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY? (LINEAR)	X	X	X
BACK0019	B006601	TB006601	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY (QUADRATIC)	X	X	X
BACK0020	HOMEEN3		NUMBER OF ITEMS IN THE HOME (NEWSPAPER, > 25 BOOKS, ENCYCLOPEDIA, MAGAZINES) (DERIVED)	X	X	X
BACK0021	B001101	TB001101	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?	X	X	X
BACK0022	B001101	TB001101	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?	X	X	X
BACK0023	ACCOM		STUDENTS ACCOMMODATION STATUS	X	X	X
BACK0024	NYRCIV		NUMBER OF YEARS TAKING CIVICS COURSES IN HIGH SCHOOL	-	-	X
BACK0025	NYRCIV2		CIVICS COURSES TAKING IN 11TH AND 12TH GRADES	-	-	X
BACK0026	INTERACT		INTERACTION: GENDER BY RACE/ETHNICITY	X	X	X
BACK0027	INTERACT		INTERACTION: GENDER BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0028	INTERACT		INTERACTION: GENDER BY PARENTS' EDUCATION ALL GRADES	X	X	X
BACK0029	INTERACT		INTERACTION: GENDER BY SCHOOL TYPE	X	X	X
BACK0030	INTERACT		INTERACTION: RACE/ETHNICITY BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0031	INTERACT		INTERACTION: RACE/ETHNICITY BY PARENTS' EDUCATION ALL GRADES	X	X	X
BACK0032	INTERACT		INTERACTION: RACE/ETHNICITY BY SCHOOL TYPE	X	X	X
BACK0033	INTERACT		INTERACTION: PARENT'S EDUCATION ALL GRADES BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0034	INTERACT		INTERACTION: TYPE OF LOCALE (7 CATEGORIES) BY SCHOOL TYPE	X	X	X
BACK0035	INTERACT		INTERACTION: PARENTS' EDUCATION ALL GRADES BY SCHOOL TYPE	X	X	X
BACK0036	INTERACT		INTERACTION: ACCOMMODATED BY GENDER	X	X	X
BACK0037	INTERACT		INTERACTION: ACCOMMODATED BY RACE/ETHNICITY	X	X	X
BACK0038	INTERACT		INTERACTION: ACCOMMODATED BY TYPE OF LOCALE (7 CATEGORIES)	X	X	X
BACK0039	INTERACT		INTERACTION: ACCOMMODATED BY PARENTS' EDUCATION ALL GRADES	X	X	X
BACK0040	INTERACT		INTERACTION: ACCOMMODATED BY SCHOOL TYPE	X	X	X
BACK0041	INTERACT		INTERACTION: ACCOMMODATED BY IEP	X	X	X
BACK0042	INTERACT		INTERACTION: ACCOMMODATED BY LEP	X	X	X
BACK0043	INTERACT		INTERACTION: GENDER BY YEARS TAKING CIVICS COURSES	-	-	X
BACK0044	INTERACT		INTERACTION: RACE/ETHNICITY BY YEARS TAKING CIVICS COURSES	-	-	X
BACK0045	INTERACT		INTERACTION: YEARS TAKING CIVICS COURSES BY TYPE OF LOCALE (7 CATEGORIES)	-	-	X
BACK0046	INTERACT		INTERACTION: PARENT'S EDUCATION BY YEARS TAKING CIVICS COURSES	-	-	X
BACK0047	INTERACT		INTERACTION: YEARS TAKING CIVICS COURSES BY SCHOOL TYPE	-	-	X
BACK0048	INTERACT		INTERACTION: ACCOMMODATED BY YEARS TAKING CIVICS COURSES	-	-	X
BACK0049	INTERACT		INTERACTION: GENDER BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES	-	-	X
BACK0050	INTERACT		INTERACTION: RACE/ETHNICITY BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES	-	-	X
BACK0051	INTERACT		INTERACTION: TYPE OF LOCALE (7 CATEGORIES) BY CIVICS COURSES TAKING IN 11TH AND 12TH GR	-	-	X

Table F-4 (continued)
Summary Table of the 1998 Civics Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
BACK0052	INTERACT		INTERACTION: PARENTS' EDUCATION ALL GRADES BY CIVICS COURSES TAKING IN 11TH AND 12TH GR	-	-	X
BACK0053	INTERACT		INTERACTION: SCHOOL TYPE BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES	-	-	X
BACK0054	INTERACT		INTERACTION: ACCOMMODATED BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES	-	-	X
BACK0055	B003001	TB003001	WHICH RACE/ETHNICITY BEST DESCRIBES YOU	X	X	X
BACK0056	B013001	ID100333	HOW LONG LIVED IN UNITED STATES	X	X	X
BACK0057	B013101	ID100322	HOW OFTEN OTHER THAN ENGLISH SPOKEN AT HOME	X	X	X
BACK0058	B013201	ID100314	MOTHER GRADUATED HIGH SCHOOL	X	X	X
BACK0059	B013301	ID100315	MOTHER HAD SOME EDUCATION AFTER HIGH SCHOOL	X	X	X
BACK0060	B013401	ID100316	MOTHER GRADUATED COLLEGE	X	X	X
BACK0061	B013501	ID100317	FATHER GRADUATED HIGH SCHOOL	X	X	X
BACK0062	B013601	ID100318	FATHER HAD SOME EDUCATION AFTER HIGH SCHOOL	X	X	X
BACK0063	B013701	ID100319	FATHER GRADUATED COLLEGE	X	X	X
BACK0064	B000901	TB000901	DOES YOUR FAMILY GET A NEWSPAPER REGULARLY	X	X	X
BACK0065	B000903	TB000903	IS THERE AN ENCYCLOPEDIA IN YOUR HOME	X	X	X
BACK0066	B013801	ID100334	HOW MANY BOOKS ARE IN YOUR HOME	X	X	X
BACK0067	B000905	TB000905	DOES YOUR FAMILY GET MAGAZINES REGULARLY	X	X	X
BACK0068	B006601	TB006601	TIME SPENT ON HOMEWORK EACH DAY	X	X	X
BACK0069	B014001	ID100324	DAYS ABSENT FROM SCHOOL LAST MONTH	X	X	X
BACK0070	B007301	HE000712	TIMES CHANGED SCHOOLS IN PAST TWO YEARS	X	X	X
BACK0071	B007401	HE000717	HOW OFTEN DISCUSS STUDIES AT HOME	X	X	X
BACK0072	B014101	ID100325	HOW OFTEN USE COMPUTER AT HOME FOR SCHOOLWORK	X	X	X
SUBJ0001	P804001	ID100338	HOW HARD TRIED ON THIS SS TEST THAN ON OTHERS	X	X	-
SUBJ0002	P804101	ID100339	HOW IMPORTANT TO DO WELL ON THIS SS TEST	X	X	-
SUBJ0003	P804201	ID100340	HOW OFTEN WRITE LONG ANSWERS ON SS TESTS	X	X	-
SUBJ0004	P804301	ID100342	MY FRIENDS MAKE FUN OF PEOPLE WHO TRY TO DO WELL	X	X	X
SUBJ0005	P804302	ID100343	I HAVE FRIENDS TO TALK TO IF NEED HELP W/SCHOOL	X	X	X
SUBJ0006	P803501	ID100191	HOW OFTEN STUDY SOCIAL STUDIES IN SCHOOL	X	X	-
SUBJ0007	P803601	ID100193	THIS YEAR-STUDY HOW OUR GOVERNMENT WORKS	X	-	-
SUBJ0008	P803602	ID100194	THIS YEAR-STUDY RULES/LAWS OF GOVERNMENT	X	-	-
SUBJ0009	P803603	ID100196	THIS YEAR-STUDY ELECTIONS AND VOTING	X	-	-
SUBJ0010	P803604	ID100197	THIS YEAR-STUDY THE PRESIDENT/LEADERS OF COUNTRY	X	-	-
SUBJ0011	P803605	ID100198	THIS YEAR-STUDY YOUR COMMUNITY	X	-	-
SUBJ0012	P803606	ID100199	THIS YEAR-STUDY RIGHTS/RESPONSIBILITIES-CITIZENS	X	-	-
SUBJ0013	P803607	ID100200	THIS YEAR-STUDY HOW PEOPLE SOLVE DISAGREEMENTS	X	-	-
SUBJ0014	P803701	ID100202	IN SOCIAL STUDIES-READ FROM TEXTBOOK	X	X	X
SUBJ0015	P803702	ID100203	IN SOCIAL STUDIES-MEMORIZE READING MATERIAL	X	X	X
SUBJ0016	P803703	ID100204	IN SOCIAL STUDIES-READ EXTRA MATERIAL	X	X	X
SUBJ0017	P803704	ID100205	IN SOCIAL STUDIES-FILL OUT WORKSHEETS	X	X	X
SUBJ0018	P803705	ID100206	IN SOCIAL STUDIES-WRITE REPORTS	X	X	X
SUBJ0019	P803706	ID100207	IN SOCIAL STUDIES-DISCUSS CURRENT EVENTS	X	X	X
SUBJ0020	P803707	ID100208	IN SOCIAL STUDIES-WATCH TV, VIDEOS, FILMSTRIPS	X	X	X
SUBJ0021	P803708	ID100209	IN SOCIAL STUDIES-DISCUSS TV, VIDEOS, FILMSTRIP	X	X	X
SUBJ0022	P803709	ID100210	IN SOCIAL STUDIES-TAKE PART IN DEBATES/PANEL DISC	X	X	X
SUBJ0023	P803710	ID100211	IN SOCIAL STUDIES-ROLE PLAYING, MOCK TRIALS	X	X	X
SUBJ0024	P803711	ID100212	IN SOCIAL STUDIES-WRITE LETTER FOR COMMUNITY	X	X	X
SUBJ0025	P803712	ID100213	IN SOCIAL STUDIES-HAVE VISITORS FROM COMMUNITY	X	X	X
SUBJ0026	P803801	ID100214	HOW OFTEN DO YOU HAVE SOCIAL STUDIES HOMEWORK	X	-	-
SUBJ0027	P803901	ID100215	DO YOU HAVE A CLASSROOM GOVERNMENT	X	X	X
SCHL0001	C042501	ID100378	FOURTH GRADERS ASSIGNED TO CLASS BY ABILITY	X	-	-
SCHL0002	C042601	ID100041	HOW OFTEN STUDENTS RECEIVE READING INSTRUCTION	X	-	-
SCHL0003	C042602	ID100042	HOW OFTEN STUDENTS RECEIVE WRITING INSTRUCTION	X	-	-
SCHL0004	C042603	ID100043	HOW OFTEN STUDENTS RECEIVE SOC STUDIES INSTRUCT	X	-	-
SCHL0005	C042604	ID100044	HOW OFTEN STUDENTS RECEIVE COMPUTER USE INSTRUCT	X	-	-
SCHL0006	C042701	ID100379	DOES SCHOOL USE BLOCK SCHEDULING	X	X	X

Table F-4 (continued)
Summary Table of the 1998 Civics Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
SCHL0007	C042801	ID100380	ARE COMPUTERS AVAILABLE IN ALL CLASSROOMS	X	X	X
SCHL0008	C042802	HE000864	ARE COMPUTERS AVAILABLE IN COMPUTER LAB	X	X	X
SCHL0009	C042803	HE000866	ARE COMPUTERS AVAILABLE TO CLASSROOM WHEN NEEDED	X	X	X
SCHL0010	C042901	ID100381	HOW MANY COMPUTERS AVAILABLE TO STUDENTS	X	X	X
SCHL0011	C036601	LC000502	PRIMARY WAY LIBRARY IS STAFFED	X	X	X
SCHL0012	C043001	ID100069	PARENTS PARTICIPATE-PARENT-TEACHER ORG	X	X	X
SCHL0013	C043002	ID100070	PARENTS PARTICIPATE-OPEN HOUSE	X	X	X
SCHL0014	C043003	ID100071	PARTICIPATE-PARENT-TEACHER CONFERENCE	X	X	X
SCHL0015	C043004	ID100072	PARENTS PARTICIPATE-SCHOOL CURRICULUM DECISIONS	X	X	X
SCHL0016	C043005	ID100073	PARENTS PARTICIPATE-VOLUNTEER PROGRAMS	X	X	X
SCHL0017	C043006	ID100074	PARENTS PARTICIPATE-PARENTING-SKILLS PROGRAM	X	X	X
SCHL0018	C043007	ID100076	PARENTS PARTICIPATE-SCHOOL ADVISORY COMMITTEES	X	X	X
SCHL0019	C043008	ID100077	PARENTS PARTICIPATE-CLASSROOM ASSISTANTS	X	X	X
SCHL0020	C032402	HE000888	IS STUDENT ABSENTEEISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0021	C032401	HE000887	IS STUDENT TARDINESS A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0022	C032404	HE000890	ARE PHYSICAL CONFLICTS A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0023	C032407	HE000893	ARE RACIAL/CULT. CONFLICTS A PROBLEM IN SCHOOL	X	X	X
SCHL0024	C032408	HE000894	IS STUDENT HEALTH A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0025	C032409	HE002121	IS LACK OF PARENT INVLVMT A PROBLEM IN SCHOOL	X	X	X
SCHL0026	C032410	HE002122	IS STUDENT ALCOHOL USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0027	C032411	HE002123	IS STUDENT TOBACCO USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0028	C032412	HE002124	IS STUDENT DRUG USE A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0029	C032413	HE002125	ARE GANG ACTIVITIES A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0030	C032414	HE002126	IS STUDENT MISBEHAVIOR A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0031	C043101	ID100079	IS STUDENT CHEATING A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0032	C043102	ID100077	IS TEACHER ABSENTEEISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0033	C043103	ID100078	ARE PHYSICAL CONFLICTS BETWEEN STUDENTS/TEACHERS	X	X	X
SCHL0034	C043104	ID100080	IS VANDALISM A PROBLEM IN YOUR SCHOOL	X	X	X
SCHL0035	C032502	HE000897	TEACHER MORALE	X	X	X
SCHL0036	C032503	HE000898	STUDENT ATTITUDES TOWARD ACADEMIC ACHIEVEMENT	X	X	X
SCHL0037	C032505	HE000900	PARENT SUPPORT FOR STUDENT ACHIEVEMENT	X	X	X
SCHL0038	C032506	HE000901	REGARD FOR SCHOOL PROPERTY	X	X	X
SCHL0039	C043201	ID100081	TEACHERS' EXPECTATIONS FOR STUDENT ACHIEVEMENT	X	X	X
SCHL0040	C043301	ID100082	PERCENT STUDENT BODY ABSENT AVERAGE DAY	X	X	X
SCHL0041	C043401	ID100389	PERCENT TEACHING STAFF ABSENT AVERAGE DAY	X	X	X
SCHL0042	C043501	ID100390	ENROLLMENT LAST YEAR COMPARED TO END OF SCHOOL YR	X	X	X
SCHL0043	C043601	HE002112	PERCENT STUDENTS HELD BACK AND REPEATING GRADE	X	X	X
SCHL0044	C043701	ID100391	PERCENT TEACHING STAFF LEFT BEFORE END OF YEAR	X	X	X
SCHL0045	C038301	HE002094	IS SCHOOL IN NATIONAL SCHOOL LUNCH PROGRAM	X	X	X
SCHL0046	C043801	ID100392	PERCENT ELIGIBLE NATIONAL SCHOOL LUNCH PROGRAM	X	X	X
SCHL0047	C043901	ID100393	DOES SCHOOL RECEIVE CHAPTER 1/TITLE I FUNDING	X	X	X
SCHL0048	C044001	ID100395	PERCENT STUDENTS RECEIVE CHAPTER1/TITLE I FUNDING	X	X	X
SCHL0049	C044002	ID100396	PERCENT STUDENTS RECEIVE REMEDIAL READING INSTRUCT	X	X	X
SCHL0050	C044003	ID100397	PERCENT STUDENTS RECEIVE REMEDIAL WRITING INSTRUCT	X	X	X
SCHL0051	C044004	ID100398	PERCENT STUDENTS IN GIFTED AND TALENTED PROGRAM	X	X	X
BACK0073	B014201	ID100248	HOW MUCH EDUCATION DO YOU EXPECT TO RECEIVE	-	X	-
SUBJ0028	P804401	ID100217	THIS YEAR-STUDIED U. S. CONSTITUTION	-	X	X
SUBJ0029	P804402	ID100218	THIS YEAR-STUDIED CONGRESS	-	X	X
SUBJ0030	P804403	ID100219	THIS YEAR-STUDIED PRESIDENT AND CABINET	-	X	X
SUBJ0031	P804404	ID100220	THIS YEAR-STUDIED HOW LAWS ARE MADE	-	X	X
SUBJ0032	P804405	ID100221	THIS YEAR-STUDIED THE COURT SYSTEM	-	X	X
SUBJ0033	P804406	ID100222	THIS YEAR-STUDIED POLIT PARTIES, ELECTIONS, VOTE	-	X	X
SUBJ0034	P804407	ID100223	THIS YEAR-STUDIED STATE & LOCAL GOVERNMENT	-	X	X
SUBJ0035	P804408	ID100224	THIS YEAR-STUDIED OTHER COUNTRIES' GOVERNMENT	-	X	X

Table F-4 (continued)
Summary Table of the 1998 Civics Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
SUBJ0036	P804409	ID100225	THIS YEAR-STUDIED INTERNATIONAL ORGANIZATIONS	-	X	X
SUBJ0037	P804501	ID100226	HOMEWORK HOURS/WEEK-SOCIAL STUDIES CLASS	-	X	-
SCHL0052	C044401	ID100400	8TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY	-	X	-
SCHL0053	C044402	ID100403	8TH GRADE ASSIGNED-HISTORY/SS BY ABILITY	-	X	-
SCHL0054	C043105	ID100086	IS STUDENT DROPOUT A PROBLEM IN YOUR SCHOOL	-	X	X
SCHL0055	C043106	ID100087	IS TEEN PREGNANCY A PROBLEM IN YOUR SCHOOL	-	X	X
BACK0074	B005501	TB005501	MAIN ACTIVITY YEAR FOLLOWING HIGH SCHOOL	-	-	X
BACK0075	B014301	ID100326	VOLUNTEER WORK IN YOUR COMMUNITY THIS YEAR	-	-	X
BACK0076	B014401	ID100332	HOW MANY HOURS/WEEK WORK JOB FOR PAY	-	-	X
SUBJ0038	P802545	ID100344	HOW HARD TRIED ON THIS CIVICS TEST THAN ON OTHERS	-	-	X
SUBJ0039	P802546	ID100345	HOW IMPORTANT TO DO WELL ON THIS CIVICS TEST	-	-	X
SUBJ0040	P802547	ID100346	HOW OFTEN WRITE LONG ANSWERS ON CIVICS TESTS	-	-	X
SUBJ0041	P804601	ID100228	GRADE 9 - STUDIED CIVICS OR GOVERNMENT	-	-	X
SUBJ0042	P804602	ID100229	GRADE 10 - STUDIED CIVICS OR GOVERNMENT	-	-	X
SUBJ0043	P804603	ID100230	GRADE 11 - STUDIED CIVICS OR GOVERNMENT	-	-	X
SUBJ0044	P804604	ID100231	GRADE 12 - STUDIED CIVICS OR GOVERNMENT	-	-	X
SUBJ0045	P804701	ID100247	HOMEWORK HOURS/WEEK CIVICS-GOVERNMENT CLASS	-	-	X
SUBJ0046	P804801	ID100233	DO YOU HAVE A TEXTBOOK TO STUDY CIVICS/GOVERNMENT	-	-	X
SUBJ0047	P804901	ID100232	ENROLLED IN OR TOOK AP U.S. GOV'T & POLITICS	-	-	X
SCHL0056	C044301	ID100404	12TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY	-	-	X
SCHL0057	C044302	ID100405	12TH GR ASSIGNED- HISTORY/CIVICS/SS CLASS ABILITY	-	-	X
SCHL0058	C044101	ID100408	PERCENT LAST YEAR'S TWELFTH-GRADE CLASS GRADUATED	-	-	X
SCHL0059	C044201	ID100410	PERCENT GRADUATING CLASS-ATTEND TWO-YEAR COLLEGE	-	-	X
SCHL0060	C044202	ID100411	PERCENT GRADUATING CLASS-ATTEND FOUR-YEAR COLLEGE	-	-	X
TCHR0001	T067001	PJ000121	DO YOU TEACH READING	X	-	-
TCHR0002	T067002	PJ000122	DO YOU TEACH WRITING	X	-	-
TCHR0003	T067003	PJ000123	DO YOU TEACH LANGUAGE ARTS	X	-	-
TCHR0004	T067004	PJ000124	DO YOU TEACH SOCIAL STUDIES	X	-	-
TCHR0005	T067101	PJ000126	YEARS TOTAL TAUGHT ELEMENTARY LEVEL	X	-	-
TCHR0006	T067201	PJ000128	YEARS TOTAL TAUGHT READING	X	-	-
TCHR0007	T067202	PJ000129	YEARS TOTAL TAUGHT WRITING	X	-	-
TCHR0008	T067203	PJ000130	YEARS TOTAL TAUGHT LANGUAGE ARTS	X	-	-
TCHR0009	T067204	PJ000131	YEARS TOTAL TAUGHT HISTORY	X	-	-
TCHR0010	T067205	PJ000132	YEARS TOTAL TAUGHT SOCIAL STUDIES	X	-	-
TCHR0011	T067206	PJ000133	YEARS TOTAL TAUGHT CIVICS	X	-	-
TCHR0012	T067301	PJ000134	MAIN ASSIGNMENT FIELD	X	X	-
TCHR0013	T056201	HE002551	TEACHING CERTIF IN THIS STATE IN MAIN FIELD	X	X	-
TCHR0014	T056301	HE001012	HIGHEST ACADEMIC DEGREE YOU HOLD	X	X	-
TCHR0015	T067501	PJ000138	UNDERGRAD MAJOR/MINOR-ELEMENTARY EDUCATION	X	X	-
TCHR0016	T067502	PJ000139	UNDERGRAD MAJOR/MINOR-SECONDARY EDUCATION	X	X	-
TCHR0017	T067503	PJ000140	UNDERGRAD MAJOR/MINOR-SPECIAL EDUCATION	X	X	-
TCHR0018	T067504	PJ000141	UNDERGRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL	X	X	-
TCHR0019	T067505	PJ000142	UNDERGRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION	X	X	-
TCHR0020	T067506	PJ000143	UNDERGRAD MAJOR/MINOR-CURRICULUM & SUPERVISION	X	X	-
TCHR0021	T067507	PJ000144	UNDERGRAD MAJOR/MINOR-COUNSELING	X	X	-
TCHR0022	T067508	PJ000145	UNDERGRAD MAJOR/MINOR-ENGLISH	X	X	-
TCHR0023	T067509	PJ000146	UNDERGRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS	X	X	-
TCHR0024	T067510	PJ000147	UNDERGRAD MAJOR/MINOR-HISTORY	X	X	-
TCHR0025	T067511	PJ000148	UNDERGRAD MAJOR/MINOR-POLITICAL SCIENCE	X	X	-
TCHR0026	T067512	PJ000149	UNDERGRAD MAJOR/MINOR-OTHER	X	X	-
TCHR0027	T067601	PJ000151	GRAD MAJOR/MINOR-ELEMENTARY EDUCATION	X	X	-
TCHR0028	T067602	PJ000152	GRAD MAJOR/MINOR-SECONDARY EDUCATION	X	X	-
TCHR0029	T067603	PJ000153	GRAD MAJOR/MINOR-SPECIAL EDUCATION	X	X	-
TCHR0030	T067604	PJ000154	GRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL	X	X	-

Table F-4 (continued)
Summary Table of the 1998 Civics Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0031	T067605	PJ000155	GRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION	X	X	-
TCHR0032	T067606	PJ000156	GRAD MAJOR/MINOR-CURRICULUM AND INSTRUCTION	X	X	-
TCHR0033	T067607	PJ000157	GRAD MAJOR/MINOR-COUNSELING	X	X	-
TCHR0034	T067608	PJ000158	GRAD MAJOR/MINOR-ENGLISH	X	X	-
TCHR0035	T067609	PJ000159	GRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS	X	X	-
TCHR0036	T067610	PJ000160	GRAD MAJOR/MINOR-HISTORY	X	X	-
TCHR0037	T067611	PJ000161	GRAD MAJOR/MINOR-POLITICAL SCIENCE	X	X	-
TCHR0038	T067612	PJ000162	GRAD MAJOR/MINOR-OTHER	X	X	-
TCHR0039	T067701	ID100358	LAST 12 MOS, PROF DEV-READING AND WRITING	X	X	-
TCHR0040	T067702	ID100147	LAST 12 MOS, PROF DEV-SOCIAL STUDIES	X	X	-
TCHR0041	T067801	PJ000169	PREPARED IN THE USE OF TELECOMMUNICATIONS	X	X	-
TCHR0042	T067802	ID100360	PREPARED IN THE USE OF COMPUTERS	X	X	-
TCHR0043	T067803	PJ000171	PREPARED IN COOPERATIVE GROUP INSTRUCTION	X	X	-
TCHR0044	T067804	PJ000176	PREPARED IN TEACHING STUDENTS-DIFFERENT CULTURES	X	X	-
TCHR0045	T067805	PJ000177	PREPARED IN TEACHING STUDENTS WHO ARE LEP	X	X	-
TCHR0046	T067806	PJ000178	PREPARED IN TEACHING STUDENTS WITH DISABILITIES	X	X	-
TCHR0047	T067807	PJ000179	PREPARED IN CLASSROOM MANAGEMENT AND ORGANIZATION	X	X	-
TCHR0048	T041201	HE001022	AVAILABILITY OF RESOURCES	X	X	-
TCHR0049	T070401	PJ000286	PREPARED IN SOCIAL STUDIES INSTRUCTION	X	X	-
TCHR0050	T070402	PJ000287	PREPARED IN PUBLIC SERVICE OPPORTUNITIES	X	X	-
TCHR0051	T070403	PJ000288	PREPARED IN INSTRUCTIONAL MATERIALS IN SOC STUDIES	X	X	-
TCHR0052	T070404	PJ000289	PREPARED IN USE OF COMMUNITY RESOURCES IN INSTRUC	X	X	-
TCHR0053	T070405	PJ000290	PREPARED IN CLASSROOM CLIMATE AND GOVERNANCE	X	X	-
TCHR0054	T070406	PJ000291	PREPARED IN USING NATL STANDARDS FOR CIVICS	X	X	-
TCHR0055	T070407	PJ000292	PREPARED IN USING SOFTWARE FOR SOCIAL STUDIES	X	X	-
TCHR0056	T070501	ID100367	WHAT IS YOUR AVERAGE SOCIAL STUDIES CLASS SIZE	X	-	-
TCHR0057	T070601	PJ000294	ARE STUDENTS ASSIGNED TO THIS CLASS BY ABILITY	X	X	-
TCHR0058	T070701	PJ000295	WHAT IS THE ABILITY LEVEL OF THE STUDENTS	X	X	-
TCHR0059	T070801	PJ000296	CLASS TIME PER DAY-SOCIAL STUDIES INSTRUCTION	X	X	-
TCHR0060	T070901	PJ000298	HOW OFTEN USE SOCIAL STUDIES TEXTBOOK	X	X	-
TCHR0061	T070902	PJ000299	HOW OFTEN USE BOOKS, NEWSPAPER, MAGAZINES	X	X	-
TCHR0062	T070903	PJ000300	HOW OFTEN USE PRIMARY DOCUMENTS	X	X	-
TCHR0063	T070904	PJ000301	HOW OFTEN USE QUANTITATIVE DATA-CHARTS, GRAPHS	X	X	-
TCHR0064	T070905	PJ000302	HOW OFTEN USE COMPUTER SOFTWARE	X	X	-
TCHR0065	T070906	PJ000303	HOW OFTEN USE FILMS, VIDEOS, FILMSTRIPS	X	X	-
TCHR0066	T070907	PJ000304	HOW OFTEN USE MATERIALS FROM OTHER SUBJECT AREAS	X	X	-
TCHR0067	T071001	PJ000305	AVAILABILITY OF COMPUTERS IN SOCIAL STUDIES CLASS	X	-	-
TCHR0068	T071101	PJ000307	HOW OFTEN STUDENTS COMPLETE A WORKSHEET	X	X	-
TCHR0069	T071102	PJ000309	HOW OFTEN STUDENTS READ EXTRA MATERIAL	X	X	-
TCHR0070	T071103	PJ000310	HOW OFTEN GIVE LECTURE ABOUT SOCIAL STUDIES	X	X	-
TCHR0071	T071104	PJ000311	HOW OFTEN STUDENTS DO GROUP ACTIVITY OR PROJECT	X	X	-
TCHR0072	T071105	PJ000312	HOW OFTEN STUDENTS WRITE THREE OR MORE PAGE REPORT	X	X	-
TCHR0073	T071106	PJ000313	HOW OFTEN STUDENTS WATCH TELEVISION, VIDEOS, FILMS	X	X	-
TCHR0074	T071107	PJ000314	HOW OFTEN STUDENTS PARTICIPATE-DEBATES	X	X	-
TCHR0075	T071108	PJ000315	HOW OFTEN STUDENTS PARTICIPATE-MOCK TRIALS	X	X	-
TCHR0076	T071109	PJ000316	HOW OFTEN STUDENTS WRITE LETTERS	X	X	-
TCHR0077	T071110	PJ000317	HOW OFTEN VISITORS MEET/DISCUSS IMPORTANT EVENTS	X	X	-
TCHR0078	T071111	PJ000318	HOW OFTEN STUDENTS VISIT GOVERNMENT/COMMUNITY	X	X	-
TCHR0079	T071112	PJ000319	HOW OFTEN STUDENTS PARTICIPATE-VOLUNTEER PROJ/SERV	X	X	-
TCHR0080	T071113	PJ000320	HOW OFTEN STUDENTS ACCESS INTERNET-CLASSROOM	X	X	-
TCHR0081	T071114	PJ000321	HOW OFTEN STUDENTS DISCUSS CURRENT EVENTS	X	X	-
TCHR0082	T071115	PJ000322	HOW OFTEN STUDENTS USE STUDENT GOVERNMENT	X	X	-
TCHR0083	T071116	PJ000323	HOW OFTEN GIVE STUDENTS SOCIAL STUDIES HOMEWORK	X	X	-
TCHR0084	T071201	PJ000325	HOW OFTEN USE MULTIPLE-CHOICE, TRUE/FALSE, MATCHING	X	X	-

Table F-4 (continued)
Summary Table of the 1998 Civics Conditioning Variable Specifications

Cond'ng. NAEP ID	ID	TDDC ID	DESCRIPTION	4	8	12
TCHR0085	T071202	PJ000326	HOW OFTEN USE FILL-IN-THE BLANK QUESTIONS	X	X	-
TCHR0086	T071203	PJ000327	HOW OFTEN USE PARAGRAPH WRITTEN RESPONSE	X	X	-
TCHR0087	T071204	PJ000328	HOW OFTEN USE INDIVIDUAL/GROUP PROJECTS	X	X	-
TCHR0088	T071205	ID100148	HOW OFTEN USE ESSAYS, PAPERS ASSIGNED TOPICS	X	X	-
TCHR0089	T071301	PJ000305	AVAILABILITY OF COMPUTERS IN SOCIAL STUDIES CLASS	-	X	-
TCHR0090	T071401	ID100150	DO YOU TEACH HISTORY	-	X	-
TCHR0091	T071402	ID100151	DO YOU TEACH SOCIAL STUDIES	-	X	-
TCHR0092	T071403	ID100152	DO YOU TEACH GOVERNMENT/CIVICS	-	X	-
TCHR0093	T071404	ID100153	DO YOU TEACH-OTHER	-	X	-
TCHR0094	T040301	HE001007	YEARS TOTAL TAUGHT ELEMENTARY OR SECONDARY	-	X	-
TCHR0095	T071501	ID100362	YEARS TOTAL TAUGHT HISTORY	-	X	-
TCHR0096	T071502	ID100363	YEARS TOTAL TAUGHT SOCIAL STUDIES	-	X	-
TCHR0097	T071503	ID100364	YEARS TOTAL TAUGHT GOVERNMENT/CIVICS	-	X	-
TCHR0098	T071504	ID100365	YEARS TOTAL TAUGHT-OTHER	-	X	-
TCHR0099	TCSIZE		WHAT IS THE NUMBER OF STUDENTS IN EACH CLASS? (8TH GRADE)	-	X	-

Table F-5
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0001			
DESCRIPTION:	GRAND MEAN			
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:	OVERALL			
NAEP ID:	BKSER	TOTAL NUMBER OF SPECIFIED CONTRASTS:	1	
TYPE OF CONTRAST:	OTHER	NUMBER OF INDEPENDENT CONTRASTS:	1	
001 OVERALL (@)	1			GRAND MEAN
CONDITIONING VARIABLE ID:	BACK0002			
DESCRIPTION:	DERIVED SEX			
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:	GENDER			
NAEP ID:	DSEX	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1	
001 MALE (1,M)	0			MALE
002 FEMALE (2)	1			FEMALE
CONDITIONING VARIABLE ID:	BACK0003			
DESCRIPTION:	DERIVED RACE/ETHNICITY			
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:	RACE/ETH			
NAEP ID:	DRACE	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 WHI/AI/O (1,5,6,M)	000			RACE/ETHNICITY: WHITE, AMERICAN INDIAN/ALASKAN NATIVE, OTHER, MISSING, UNCLASSIFIED
002 BLACK (2)	100			RACE/ETHNICITY: BLACK
003 HISPANIC (3)	010			RACE/ETHNICITY: HISPANIC
004 ASIAN (4)	001			RACE/ETHNICITY: ASIAN / PACIFIC ISLANDER
CONDITIONING VARIABLE ID:	BACK0004			
DESCRIPTION:	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND?			
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:	HISPANIC			
NAEP ID:	B003101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 NOT HISP (1)	0000			HISPANIC: NOT HISPANIC
002 MEXICAN (2)	1000			HISPANIC: MEXICAN, MEXICAN AMERICAN, CHICANO
003 PUER RIC (3)	0100			HISPANIC: PUERTO RICAN
004 CUBN,OTH (4,5)	0010			HISPANIC: CUBAN, OTHER
005 HISP-? (M)	0001			HISPANIC: MISSING
CONDITIONING VARIABLE ID:	BACK0005			
DESCRIPTION:	TOL 7 - TYPE OF LOCATION			
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:	TOL7			
NAEP ID:	TOL7	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6	
001 BIG CTY7 (1)	000000			TOL7: LARGE CITY
002 MID CTY7 (2,M)	100000			TOL7: MID-SIZE CITY
003 FR/LCTY7 (3)	010000			TOL7: URBAN FRINGE OF LARGE CITY
004 FR/MCTY7 (4)	001000			TOL7: URBAN FRINGE OF MID-SIZE CITY
005 LAR TWN7 (5)	000100			TOL7: LARGE TOWN
006 SML TWN7 (6)	000010			TOL7: SMALL TOWN
007 OTHER (7)	000001			TOL7: OTHER
CONDITIONING VARIABLE ID:	BACK0006			
DESCRIPTION:	TYPE OF LOCALE (5 CATEGORIES)			
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:	TOL5			
NAEP ID:	TOL5	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 BIG CTY5 (1)	0000			TOL5: LARGE CITY
002 MID CTY5 (2,M)	1000			TOL5: MID-SIZE CITY
003 FR/BTWN5 (3)	0100			TOL5: URBAN FRINGE AND LARGE TOWN
004 SML TWN5 (4)	0010			TOL5: SMALL TOWN
005 RURAL5 (5)	0001			TOL5: RURAL (MSA AND NON-MSA)
CONDITIONING VARIABLE ID:	BACK0007			
DESCRIPTION:	PARENTS' HIGHEST LEVEL OF EDUCATION, GRADES 8 AND 12			
GRADES/ASSESSMENTS:	N08, S08, N12			
CONDITIONING VAR LABEL:	PARED			
NAEP ID:	PARED	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 < HS (1)	0000			PARED: LESS THAN HIGH SCHOOL
002 HS GRAD (2)	1000			PARED: HIGH SCHOOL GRADUATE
003 POST HS (3)	0100			PARED: POST HIGH SCHOOL
004 COL GRAD (4)	0010			PARED: COLLEGE GRADUATE
005 PARED-? (5,M)	0001			PARED: MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0008			
DESCRIPTION:	PARENTS' HIGHEST LEVEL OF EDUCATION, GRADE 4			
GRADES/ASSESSMENTS:	N04, S04			
CONDITIONING VAR LABEL:	PARED2			
NAEP ID:	PARED2	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 < HS (1)	0000			PARED: LESS THAN HIGH SCHOOL
002 HS GRAD (2)	1000			PARED: HIGH SCHOOL GRADUATE
003 POST HS (3)	0100			PARED: POST HIGH SCHOOL
004 COL GRAD (4)	0010			PARED: COLLEGE GRADUATE
005 PARED-? (5,M)	0001			PARED: MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0009			
DESCRIPTION:	REGION OF THE COUNTRY			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:	REGION			
NAEP ID:	REGION	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 N EAST (1,M)	000			REGION: NORTHEAST
002 S EAST (2)	100			REGION: SOUTHEAST
003 CENTRAL (3)	010			REGION: CENTRAL
004 WEST (4,5)	001			REGION: WEST, TERRITORIES (NONE)

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0010				
DESCRIPTION:	SCHOOL TYPE				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	SCHTYPE				
NAEP ID:	SCHTYPE		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 PUBLIC (1)	) 00				SCHOOL TYPE: PUBLIC, CHARTER SCHOOLS
002 PRIVATE (2,4,5,M)	) 10				SCHOOL TYPE: PRIVATE, BIA, RELIGIOUS, DEPARTMENT OF DEFENSE, MISSING
003 CATHOLIC (3)	) 01				SCHOOL TYPE: CATHOLIC
CONDITIONING VARIABLE ID:	BACK0011				
DESCRIPTION:	RACE				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	RACE				
NAEP ID:	RACE		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	3	
001 WHI/AI/O (1,5,6,M)	) 000				RACE: WHITE, AMERICAN INDIAN/ALASKAN NATIVE, OTHER, MISSING, UNCLASSIFIED
002 BLACK (2)	) 100				RACE: BLACK
003 HISPANIC (3)	) 010				RACE: HISPANIC
004 ASIAN (4)	) 001				RACE: ASIAN / PACIFIC ISLANDER
CONDITIONING VARIABLE ID:	BACK0012				
DESCRIPTION:	INDIVIDUALIZED EDUCATION PLAN				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	IEP				
NAEP ID:	IEP		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 IEP-YES (1)	) 0				IEP: YES
002 IEP-NO (2,M)	) 1				IEP: NO
CONDITIONING VARIABLE ID:	BACK0013				
DESCRIPTION:	LIMITED ENGLISH PROFICIENCY				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	LEP				
NAEP ID:	LEP		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 LEP-YES (1)	) 0				LEP: YES
002 LEP-NO (2,M)	) 1				LEP: NO
CONDITIONING VARIABLE ID:	BACK0014				
DESCRIPTION:	TITLE 1: (BOOK COVER)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	TITLE 1				
NAEP ID:	TITLE1		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TITLE-Y (1)	) 0				TITLE 1: YES
002 TITLE-N (2,M)	) 1				TITLE 1: NO
CONDITIONING VARIABLE ID:	BACK0015				
DESCRIPTION:	DO YOU RECEIVE A FREE OR REDUCED-PRICE LUNCH?				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	LUNCH				
NAEP ID:	LUNCH		TOTAL NUMBER OF SPECIFIED CONTRASTS:	6	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	5	
001 NOT ELIG (1)	) 00000				LUNCH PROGRAM: NOT ELIGIBLE
002 RED PRIC (2)	) 10000				LUNCH PROGRAM: REDUCED PRICE
003 FREE (3)	) 01000				LUNCH PROGRAM: FREE
004 INFO N/A (4,M)	) 00100				LUNCH PROGRAM: INFO NOT AVAILABLE
005 SCH/REF (5)	) 00010				LUNCH PROGRAM: SCHOOL REFUSAL
006 SCH/NP (6)	) 00001				LUNCH PROGRAM: SCHOOL NOT PARTICIPATE
CONDITIONING VARIABLE ID:	BACK0016				
DESCRIPTION:	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (LINEAR)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	TVWATCHL				
NAEP ID:	B001801		TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:	LINEAR		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TVLIN-0 (1)	) 0				TV WATCHING (LINEAR) (0 TO 6+ HOURS PER DAY)
002 TVLIN-1 (2)	) 1				TV WATCHING (LINEAR)
003 TVLIN-2 (3)	) 2				TV WATCHING (LINEAR)
004 TVLIN-3 (4,M)	) 3				TV WATCHING (LINEAR)
005 TVLIN-4 (5)	) 4				TV WATCHING (LINEAR)
006 TVLIN-5 (6)	) 5				TV WATCHING (LINEAR)
007 TVLIN-6 (7)	) 6				TV WATCHING (LINEAR)
CONDITIONING VARIABLE ID:	BACK0017				
DESCRIPTION:	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (QUADRATIC)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	TVWATCHQ				
NAEP ID:	B001801		TOTAL NUMBER OF SPECIFIED CONTRASTS:	1	
TYPE OF CONTRAST:	QUADRATIC		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TV-QUAD (1-7,M=4)	) 1.0 + -2.0*X + 1.0*X**2				TV WATCHING (QUADRATIC)
CONDITIONING VARIABLE ID:	BACK0018				
DESCRIPTION:	HOMEWORK ASSIGNED?: BASED ON TIME SPENT ON HOMEWORK EACH DAY.				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	HWASSIGN				
NAEP ID:	B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 HW-MISS (M)	) 00				HOMEWORK ASSIGNED?: MISSING
002 HW-NO (1)	) 10				HOMEWORK ASSIGNED?: NO
003 HW-YES (2-5)	) 01				HOMEWORK ASSIGNED?: YES

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	BACK0019				
DESCRIPTION:	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY? (LINEAR)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	HOMEWRKL				
NAEP ID:	B006601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	LINEAR	NUMBER OF INDEPENDENT CONTRASTS:	1		
001 HWLIN-0 (1,2,M)	) 0			HOMEWORK (LINEAR):	DON'T HAVE ANY, DON'T DO ANY, MISSING
002 HWLIN-1 (3)	) 1			HOMEWORK (LINEAR):	1/2 HOUR OR LESS
003 HWLIN-2 (4)	) 2			HOMEWORK (LINEAR):	1 HOUR
004 HWLIN-3 (5)	) 3			HOMEWORK (LINEAR):	MORE THAN 1 HOUR
CONDITIONING VARIABLE ID:	BACK0020				
DESCRIPTION:	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY (QUADRATIC)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	HOMEWRKQ				
NAEP ID:	B006601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	SCALE	NUMBER OF INDEPENDENT CONTRASTS:	1		
001 HWQUAD-0 (1,2,M)	) 0			HOMEWORK (QUADRATIC):	DON'T HAVE ANY, DON'T DO ANY, MISSING
002 HWQUAD-1 (3)	) 1			HOMEWORK (QUADRATIC):	1/2 HOUR OR LESS
003 HWQUAD-2 (4)	) 4			HOMEWORK (QUADRATIC):	1 HOUR
004 HWQUAD-3 (5)	) 9			HOMEWORK (QUADRATIC):	MORE THAN 1 HOUR
CONDITIONING VARIABLE ID:	BACK0021				
DESCRIPTION:	NUMBER OF ITEMS IN THE HOME (NEWSPAPER, > 25 BOOKS, ENCYCLOPEDIA, MAGAZINES) (DERIVED)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	HOMEITMS				
NAEP ID:	HOMEEN2	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2		
001 HITEM<=2 (1,M)	) 00			ITEMS IN HOME:	ZERO TO TWO ITEMS, MISSING
002 HITEM=3 (2)	) 10			ITEMS IN HOME:	THREE ITEMS
003 HITEM=4 (3)	) 01			ITEMS IN HOME:	FOUR ITEMS
CONDITIONING VARIABLE ID:	BACK0022				
DESCRIPTION:	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	PGSREAD1				
NAEP ID:	B001101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1		
001 PGS<6,? (5,M)	) 0			PAGES READ:	5 OR FEWER A DAY, MISSING
002 PGS>5 (1,2,3,4)	) 1			PAGES READ:	6-10, 11-15, 16-20, 20 OR MORE
CONDITIONING VARIABLE ID:	BACK0023				
DESCRIPTION:	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	PGSREAD2				
NAEP ID:	B001101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1		
001 PGS<11,? (4,5,M)	) 0			PAGES READ:	6-10, 5 OR FEWER A DAY, MISSING
002 PGS>10 (1,2,3)	) 1			PAGES READ:	11-15, 16-20, 20 OR MORE
CONDITIONING VARIABLE ID:	BACK0024				
DESCRIPTION:	INTERACTION: GENDER BY RACE/ETHNICITY				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	GEND/RAC				
NAEP ID:	N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8		
TYPE OF CONTRAST:	INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	3		
001 G/R 11 (11)	) 010101			GEND/RAC INTACT:	1. MALE 1. WHI/AI/O
002 G/R 12 (12)	) -10000			GEND/RAC INTACT:	1. MALE 2. BLACK
003 G/R 13 (13)	) 00-100			GEND/RAC INTACT:	1. MALE 3. HISPANIC
004 G/R 14 (14)	) 0000-1			GEND/RAC INTACT:	1. MALE 4. ASIAN
005 G/R 21 (21)	) -1-1-1			GEND/RAC INTACT:	2. FEMALE 1. WHI/AI/O
006 G/R 22 (22)	) 010000			GEND/RAC INTACT:	2. FEMALE 2. BLACK
007 G/R 23 (23)	) 000100			GEND/RAC INTACT:	2. FEMALE 3. HISPANIC
008 G/R 24 (24)	) 000001			GEND/RAC INTACT:	2. FEMALE 4. ASIAN
CONDITIONING VARIABLE ID:	BACK0025				
DESCRIPTION:	INTERACTION: GENDER BY TYPE OF LOCALE (7 CATEGORIES)				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	GEND/TOL				
NAEP ID:	N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	14		
TYPE OF CONTRAST:	INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	6		
001 G/T 11 (11)	) 010101010101			GEND/TOL INTACT:	1. MALE 1. BIG CTY7
002 G/T 12 (12)	) -10000000000			GEND/TOL INTACT:	1. MALE 2. MID CTY7
003 G/T 13 (13)	) 00-100000000			GEND/TOL INTACT:	1. MALE 3. FR/LCTY7
004 G/T 14 (14)	) 0000-1000000			GEND/TOL INTACT:	1. MALE 4. FR/MCTY7
005 G/T 15 (15)	) 000000-10000			GEND/TOL INTACT:	1. MALE 5. LAR TWN7
006 G/T 16 (16)	) 00000000-100			GEND/TOL INTACT:	1. MALE 6. SML TWN7
007 G/T 17 (17)	) 0000000000-1			GEND/TOL INTACT:	1. MALE 7. OTHER
008 G/T 21 (21)	) -1-1-1-1-1-1			GEND/TOL INTACT:	2. FEMALE 1. BIG CTY7
009 G/T 22 (22)	) 010000000000			GEND/TOL INTACT:	2. FEMALE 2. MID CTY7
010 G/T 23 (23)	) 000100000000			GEND/TOL INTACT:	2. FEMALE 3. FR/LCTY7
011 G/T 24 (24)	) 000001000000			GEND/TOL INTACT:	2. FEMALE 4. FR/MCTY7
012 G/T 25 (25)	) 000000010000			GEND/TOL INTACT:	2. FEMALE 5. LAR TWN7
013 G/T 26 (26)	) 000000000100			GEND/TOL INTACT:	2. FEMALE 6. SML TWN7
014 G/T 27 (27)	) 000000000001			GEND/TOL INTACT:	2. FEMALE 7. OTHER
CONDITIONING VARIABLE ID:	BACK0026				
DESCRIPTION:	INTERACTION: GENDER BY PARENTS' EDUCATION GRADES 8 & 12				
GRADES/ASSESSMENTS:	N08, S08, N12				
CONDITIONING VAR LABEL:	GEND/PAR				
NAEP ID:	N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	10		
TYPE OF CONTRAST:	INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	4		
001 G/P 11 (11)	) 01010101			GEND/PAR INTACT:	1. MALE 1. < HS
002 G/P 12 (12)	) -1000000			GEND/PAR INTACT:	1. MALE 2. HS GRAD
003 G/P 13 (13)	) 00-10000			GEND/PAR INTACT:	1. MALE 3. POST HS
004 G/P 14 (14)	) 0000-100			GEND/PAR INTACT:	1. MALE 4. COL GRAD
005 G/P 15 (15)	) 000000-1			GEND/PAR INTACT:	1. MALE 5. PARED-?
006 G/P 21 (21)	) -1-1-1-1			GEND/PAR INTACT:	2. FEMALE 1. < HS
007 G/P 22 (22)	) 01000000			GEND/PAR INTACT:	2. FEMALE 2. HS GRAD
008 G/P 23 (23)	) 00010000			GEND/PAR INTACT:	2. FEMALE 3. POST HS
009 G/P 24 (24)	) 00000100			GEND/PAR INTACT:	2. FEMALE 4. COL GRAD
010 G/P 25 (25)	) 00000001			GEND/PAR INTACT:	2. FEMALE 5. PARED-?

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	BACK0037				
DESCRIPTION:	INTERACTION: PARENTS' EDUCATION GRADE 4 BY SCHOOL TYPE				
GRADES/ASSESSMENTS:	N04, S04				
CONDITIONING VAR LABEL:	PARE/SCH				
NAEP ID:	N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	15		
TYPE OF CONTRAST:	INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	8		
001 P/S 11 (11)	) 0101010101010101			PARE/SCH INTACT: 1. < HS	1. PUBLIC
002 P/S 12 (12)	) -100-100-100-100			PARE/SCH INTACT: 1. < HS	2. PRIVATE
003 P/S 13 (13)	) 00-100-100-100-1			PARE/SCH INTACT: 1. < HS	3. CATHOLIC
004 P/S 21 (21)	) -1-10000000000000			PARE/SCH INTACT: 2. HS GRAD	1. PUBLIC
005 P/S 22 (22)	) 010000000000000000			PARE/SCH INTACT: 2. HS GRAD	2. PRIVATE
006 P/S 23 (23)	) 000100000000000000			PARE/SCH INTACT: 2. HS GRAD	3. CATHOLIC
007 P/S 31 (31)	) 0000-1-1000000000			PARE/SCH INTACT: 3. POST HS	1. PUBLIC
008 P/S 32 (32)	) 000001000000000000			PARE/SCH INTACT: 3. POST HS	2. PRIVATE
009 P/S 33 (33)	) 000000010000000000			PARE/SCH INTACT: 3. POST HS	3. CATHOLIC
010 P/S 41 (41)	) 00000000-1-10000			PARE/SCH INTACT: 4. COL GRAD	1. PUBLIC
011 P/S 42 (42)	) 000000000100000000			PARE/SCH INTACT: 4. COL GRAD	2. PRIVATE
012 P/S 43 (43)	) 000000000000100000			PARE/SCH INTACT: 4. COL GRAD	3. CATHOLIC
013 P/S 51 (51)	) 0000000000000-1-1			PARE/SCH INTACT: 5. PARED-?	1. PUBLIC
014 P/S 52 (52)	) 000000000000001000			PARE/SCH INTACT: 5. PARED-?	2. PRIVATE
015 P/S 53 (53)	) 00000000000000001			PARE/SCH INTACT: 5. PARED-?	3. CATHOLIC
CONDITIONING VARIABLE ID:	BACK0041				
DESCRIPTION:	SAMPLE TYPE				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	SAMPLE				
NAEP ID:	SUBSAMP	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1		
001 SAMP S2 (02)	) 0			SAMPLE S2	
002 SAMP S3 (03)	) 1			SAMPLE S3	
CONDITIONING VARIABLE ID:	BACK0042				
DESCRIPTION:	INTERACTION: SAMPLE BY RACE/ETHNICITY				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:	SAMP/RAC				
NAEP ID:	N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8		
TYPE OF CONTRAST:	INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	3		
001 S/R 11 (11)	) 010101			SAMP/RAC INTACT: 1. SAMP S2	1. WHI/AI/O
002 S/R 12 (12)	) -10000			SAMP/RAC INTACT: 1. SAMP S2	2. BLACK
003 S/R 13 (13)	) 00-100			SAMP/RAC INTACT: 1. SAMP S2	3. HISPANIC
004 S/R 14 (14)	) 0000-1			SAMP/RAC INTACT: 1. SAMP S2	4. ASIAN
005 S/R 21 (21)	) -1-1-1			SAMP/RAC INTACT: 2. SAMP S3	1. WHI/AI/O
006 S/R 22 (22)	) 010000			SAMP/RAC INTACT: 2. SAMP S3	2. BLACK
007 S/R 23 (23)	) 000100			SAMP/RAC INTACT: 2. SAMP S3	3. HISPANIC
008 S/R 24 (24)	) 000001			SAMP/RAC INTACT: 2. SAMP S3	4. ASIAN
CONDITIONING VARIABLE ID:	BACK0043				
DESCRIPTION:	REPORTING SAMPLE				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:					
NAEP ID:	RPTSAMP	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1		
001 RPTSAMP (01)	) 0			YES	
002 RPT NO (02)	) 1			NO	
CONDITIONING VARIABLE ID:	BACK0045				
DESCRIPTION:	WHICH RACE/ETHNICITY BEST DESCRIBES YOU				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:					
NAEP ID:	B003001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6		
001 WHITE (01)	) 000000			WHITE	
002 BLACK (02)	) 100000			BLACK	
003 HISPANIC (03)	) 010000			HISPANIC	
004 ASIAN AM (04)	) 001000			ASIAN/PACIFIC ISLAND	
005 AMER IND (05)	) 000100			AMER IND/ALASKA NATV	
006 OTHER (06)	) 000010			OTHER	
007 B003001M (M)	) 000001			MISSING	
CONDITIONING VARIABLE ID:	BACK0046				
DESCRIPTION:	HOW LONG LIVED IN UNITED STATES				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:					
NAEP ID:	B014601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3		
001 B014601A (01)	) 000			MORE THAN 5 YEARS	
002 B014601B (02)	) 100			3-5 YEARS	
003 B014601C (03)	) 010			LESS THAN 3 YEARS	
004 B014601M (M)	) 001			MISSING	
CONDITIONING VARIABLE ID:	BACK0047				
DESCRIPTION:	HOW OFTEN OTHER THAN ENGLISH SPOKEN IN HOME				
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12				
CONDITIONING VAR LABEL:					
NAEP ID:	B003201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3		
001 B003201A (01)	) 000			NEVER	
002 B003201B (02)	) 100			SOMETIMES	
003 B003201C (03)	) 010			ALWAYS	
004 B003201M (M)	) 001			MISSING	

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: BACK0048			
DESCRIPTION: MOTHER GRADUATED HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	B013201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013201Y (01	) 000		YES
002 B013201N (02	) 100		NO
003 B013201M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0049			
DESCRIPTION: MOTHER HAD SOME EDUCATION AFTER HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	B013301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013301Y (01	) 000		YES
002 B013301N (02	) 100		NO
003 B013301M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0050			
DESCRIPTION: MOTHER GRADUATED COLLEGE			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	B013401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013401Y (01	) 000		YES
002 B013401N (02	) 100		NO
003 B013401M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0051			
DESCRIPTION: FATHER GRADUATED HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	B013501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013501Y (01	) 000		YES
002 B013501N (02	) 100		NO
003 B013501M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0052			
DESCRIPTION: FATHER HAD SOME EDUCATION AFTER HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	B013601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013601Y (01	) 000		YES
002 B013601N (02	) 100		NO
003 B013601M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0053			
DESCRIPTION: FATHER GRADUATED COLLEGE			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	B013701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013701Y (01	) 000		YES
002 B013701N (02	) 100		NO
003 B013701M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0054			
DESCRIPTION: DOES YOUR FAMILY GET A NEWSPAPER REGULARLY			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B000901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000901Y (01	) 000		YES
002 B000901N (02	) 100		NO
003 B000901M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0055			
DESCRIPTION: IS THERE AN ENCYCLOPEDIA IN YOUR HOME			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B000903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000903Y (01	) 000		YES
002 B000903N (02	) 100		NO
003 B000903M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0056			
DESCRIPTION: ARE THERE MORE THAN 25 BOOKS IN YOUR HOME			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B000904	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000904Y (01	) 000		YES
002 B000904N (02	) 100		NO
003 B000904M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0057			
DESCRIPTION: DOES YOUR FAMILY GET MAGAZINES REGULARLY			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B000905	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000905Y (01	) 000		YES
002 B000905N (02	) 100		NO
003 B000905M (M, IDK	) 001		MISSING, I DON'T KNOW

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	BACK0058		
DESCRIPTION:	HOW MANY DAYS OF SCHOOL MISSED LAST MONTH		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	S004001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 S004001A (01	) 00000		NONE
002 S004001B (02	) 10000		1 OR 2 DAYS
003 S004001C (03	) 01000		3 OR 4 DAYS
004 S004001D (04	) 00100		5 TO 10 DAYS
005 S004001E (05	) 00010		MORE THAN 10 DAYS
006 S004001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	BACK0059		
DESCRIPTION:	TIMES CHANGED SCHOOLS IN PAST TWO YEARS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B007301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B007301N (01	) 0000		NONE
002 B007301B (02	) 1000		1
003 B007301C (03	) 0100		2
004 B007301D (04	) 0010		3 OR MORE
005 B007301M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	BACK0060		
DESCRIPTION:	HOW OFTEN DISCUSS STUDIES AT HOME		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B007401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B007401A (01	) 0000		ALMOST EVERY DAY
002 B007401B (02	) 1000		ONCE/TWICE A WEEK
003 B007401C (03	) 0100		ONCE/TWICE A MONTH
004 B007401D (04	) 0010		NEVER OR HARDLY EVER
005 B007401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	BACK0061		
DESCRIPTION:	HOW OFTEN USE COMPUTER FOR SCHOOLWORK		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B014501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B014501A (01	) 0000		ALMOST EVERY DAY
002 B014501B (02	) 1000		ONCE/TWICE A WEEK
003 B014501C (03	) 0100		ONCE/TWICE A MONTH
004 B014501D (04	) 0010		NEVER OR HARDLY EVER
005 B014501M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0001		
DESCRIPTION:	HOW HARD TRIED ON THIS READING TEST THAN ON OTHERS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R830301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R830301A (01	) 0000		TRIED MUCH HARDER
002 R830301B (02	) 1000		TRIED HARDER
003 R830301C (03	) 0100		TRIED ABOUT AS HARD
004 R830301N (04	) 0010		TRIED NOT AS HARD
005 R830301M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0002		
DESCRIPTION:	HOW IMPORTANT TO DO WELL ON THIS READING TEST		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R830401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R830401A (01	) 0000		VERY IMPORTANT
002 R830401B (02	) 1000		IMPORTANT
003 R830401C (03	) 0100		SOMEWHAT IMPORTANT
004 R830401N (04	) 0010		NOT VERY IMPORTANT
005 R830401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0003		
DESCRIPTION:	HOW OFTEN HAD TO WRITE LONG ANSWERS TO QSTS?		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	RM00501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 RM00501A (01	) 0000		AT LEAST ONCE A WEEK
002 RM00501B (02	) 1000		ONCE OR TWICE A MNTH
003 RM00501C (03	) 0100		ONCE OR TWICE A YEAR
004 RM00501D (04	) 0010		NEVER
005 RM00501M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0004		
DESCRIPTION:	MY FRIENDS MAKE FUN OF PEOPLE WHO TRY TO DO WELL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R830501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R830501A (01	) 0000		STRONGLY AGREE
002 R830501B (02	) 1000		AGREE
003 R830501C (03	) 0100		DISAGREE
004 R830501D (04	) 0010		STRONGLY DISAGREE
005 R830501M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0005		
DESCRIPTION:	I HAVE FRIENDS TO TALK TO IF NEED HELP W/SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R830502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R830502A (01	) 0000		STRONGLY AGREE
002 R830502B (02	) 1000		AGREE
003 R830502C (03	) 0100		DISAGREE
004 R830502D (04	) 0010		STRONGLY DISAGREE
005 R830502M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0006		
DESCRIPTION:	BOOKS READ OUTSIDE SCHOOL IN PAST MONTH		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810801N (01	) 0000		NONE
002 R810801B (02	) 1000		ONE OR TWO
003 R810801C (03	) 0100		THREE OR FOUR
004 R810801D (04	) 0010		FIVE OR MORE
005 R810801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0007		
DESCRIPTION:	WHAT KIND OF READER ARE YOU		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810201A (01	) 0000		A VERY GOOD READER
002 R810201B (02	) 1000		A GOOD READER
003 R810201C (03	) 0100		AN AVERAGE READER
004 R810201D (04	) 0010		A POOR READER
005 R810201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0008		
DESCRIPTION:	HOW OFTEN READ FOR FUN ON OWN		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810901A (01	) 0000		ALMOST EVERY DAY
002 R810901B (02	) 1000		ONCE/TWICE A WEEK
003 R810901C (03	) 0100		ONCE/TWICE A MONTH
004 R810901D (04	) 0010		NEVER OR HARDLY EVER
005 R810901M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0009		
DESCRIPTION:	HOW OFTEN TALK W/FRIENDS ABOUT WHAT YOU READ		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810902A (01	) 0000		ALMOST EVERY DAY
002 R810902B (02	) 1000		ONCE/TWICE A WEEK
003 R810902C (03	) 0100		ONCE/TWICE A MONTH
004 R810902D (04	) 0010		NEVER OR HARDLY EVER
005 R810902M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0010		
DESCRIPTION:	HOW OFTEN TAKE BOOKS FROM LIBRARY ON YOUR OWN		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810903A (01	) 0000		ALMOST EVERY DAY
002 R810903B (02	) 1000		ONCE/TWICE A WEEK
003 R810903C (03	) 0100		ONCE/TWICE A MONTH
004 R810903D (04	) 0010		NEVER OR HARDLY EVER
005 R810903M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0011		
DESCRIPTION:	HOW OFTEN READ A STORY OR NOVEL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810904	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810904A (01	) 0000		ALMOST EVERY DAY
002 R810904B (02	) 1000		ONCE/TWICE A WEEK
003 R810904C (03	) 0100		ONCE/TWICE A MONTH
004 R810904D (04	) 0010		NEVER OR HARDLY EVER
005 R810904M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0012		
DESCRIPTION:	HOW OFTEN READ A NEWSPAPER		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810905	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810905A (01	) 0000		ALMOST EVERY DAY
002 R810905B (02	) 1000		ONCE/TWICE A WEEK
003 R810905C (03	) 0100		ONCE/TWICE A MONTH
004 R810905D (04	) 0010		NEVER OR HARDLY EVER
005 R810905M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	SUBJ0013		
DESCRIPTION:	HOW OFTEN READ A MAGAZINE		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R810906	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R810906A (01	) 0000		ALMOST EVERY DAY
002 R810906B (02	) 1000		ONCE/TWICE A WEEK
003 R810906C (03	) 0100		ONCE/TWICE A MONTH
004 R810906D (04	) 0010		NEVER OR HARDLY EVER
005 R810906M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0014		
DESCRIPTION:	ASKED TO DO GROUP PROJECT ABOUT WHAT YOU READ		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R811005	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811005A (01	) 0000		ALMOST EVERY DAY
002 R811005B (02	) 1000		ONCE/TWICE A WEEK
003 R811005C (03	) 0100		ONCE/TWICE A MONTH
004 R811005D (04	) 0010		NEVER OR HARDLY EVER
005 R811005M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0015		
DESCRIPTION:	ASKED TO READ ALOUD		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R811006	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811006A (01	) 0000		ALMOST EVERY DAY
002 R811006B (02	) 1000		ONCE/TWICE A WEEK
003 R811006C (03	) 0100		ONCE/TWICE A MONTH
004 R811006D (04	) 0010		NEVER OR HARDLY EVER
005 R811006M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0016		
DESCRIPTION:	ASKED TO READ SILENTLY		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R811007	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811007A (01	) 0000		ALMOST EVERY DAY
002 R811007B (02	) 1000		ONCE/TWICE A WEEK
003 R811007C (03	) 0100		ONCE/TWICE A MONTH
004 R811007D (04	) 0010		NEVER OR HARDLY EVER
005 R811007M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0017		
DESCRIPTION:	GIVEN TIME TO READ BOOKS YOU HAVE CHOSEN		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R811009	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811009A (01	) 0000		ALMOST EVERY DAY
002 R811009B (02	) 1000		ONCE/TWICE A WEEK
003 R811009C (03	) 0100		ONCE/TWICE A MONTH
004 R811009D (04	) 0010		NEVER OR HARDLY EVER
005 R811009M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0018		
DESCRIPTION:	ASKED TO TALK W/STUDENTS ABOUT WHAT YOU READ		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R811002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811002A (01	) 0000		ALMOST EVERY DAY
002 R811002B (02	) 1000		ONCE/TWICE A WEEK
003 R811002C (03	) 0100		ONCE/TWICE A MONTH
004 R811002D (04	) 0010		NEVER OR HARDLY EVER
005 R811002M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0019		
DESCRIPTION:	ASKED TO WRITE ABOUT WHAT YOU READ		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R811004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811004A (01	) 0000		ALMOST EVERY DAY
002 R811004B (02	) 1000		ONCE/TWICE A WEEK
003 R811004C (03	) 0100		ONCE/TWICE A MONTH
004 R811004D (04	) 0010		NEVER OR HARDLY EVER
005 R811004M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0020		
DESCRIPTION:	TEACHER HELPS YOU BREAK WORDS INTO PARTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	R818101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R818101A (01	) 0000		ALMOST EVERY DAY
002 R818101B (02	) 1000		ONCE/TWICE A WEEK
003 R818101C (03	) 0100		ONCE/TWICE A MONTH
004 R818101D (04	) 0010		NEVER OR HARDLY EVER
005 R818101M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SUBJ0021			
DESCRIPTION: TEACHER HELPS YOU UNDERSTAND NEW WORDS			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R818102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R818102A (01	) 0000		ALMOST EVERY DAY
002 R818102B (02	) 1000		ONCE/TWICE A WEEK
003 R818102C (03	) 0100		ONCE/TWICE A MONTH
004 R818102D (04	) 0010		NEVER OR HARDLY EVER
005 R818102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0022			
DESCRIPTION: DO YOU AND TEACHER REVIEW PROGRESS IN READING			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R830001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 R830001Y (01	) 00		YES
002 R830001N (02	) 10		NO
003 R830001M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SUBJ0023			
DESCRIPTION: IS THERE A SCHOOL/PUBLIC LIBRARY AVAILABLE			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	R830101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 R830101Y (01	) 00		YES
002 R830101N (02	) 10		NO
003 R830101M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SUBJ0024			
DESCRIPTION: USE LIBRARY TO DO RESEARCH FOR SCHOOL ASSIGNMENT			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R811301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 R811301A (01	) 00000		ALMOST EVERY DAY
002 R811301B (02	) 10000		ONCE/TWICE A WEEK
003 R811301C (03	) 01000		ONCE/TWICE A MONTH
004 R811301D (04	) 00100		ONCE/TWICE A YEAR
005 R811301E (05	) 00010		NEVER OR HARDLY EVER
006 R811301M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SUBJ0025			
DESCRIPTION: USE LIBRARY TO BORROW BOOKS FOR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R811302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 R811302A (01	) 00000		ALMOST EVERY DAY
002 R811302B (02	) 10000		ONCE/TWICE A WEEK
003 R811302C (03	) 01000		ONCE/TWICE A MONTH
004 R811302D (04	) 00100		ONCE/TWICE A YEAR
005 R811302E (05	) 00010		NEVER OR HARDLY EVER
006 R811302M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SUBJ0026			
DESCRIPTION: USE LIBRARY TO USE A COMPUTER			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R811303	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 R811303A (01	) 00000		ALMOST EVERY DAY
002 R811303B (02	) 10000		ONCE/TWICE A WEEK
003 R811303C (03	) 01000		ONCE/TWICE A MONTH
004 R811303D (04	) 00100		ONCE/TWICE A YEAR
005 R811303E (05	) 00010		NEVER OR HARDLY EVER
006 R811303M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SUBJ0027			
DESCRIPTION: USE LIBRARY AS A QUIET PLACE TO STUDY			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R811304	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 R811304A (01	) 00000		ALMOST EVERY DAY
002 R811304B (02	) 10000		ONCE/TWICE A WEEK
003 R811304C (03	) 01000		ONCE/TWICE A MONTH
004 R811304D (04	) 00100		ONCE/TWICE A YEAR
005 R811304E (05	) 00010		NEVER OR HARDLY EVER
006 R811304M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0001			
DESCRIPTION: FOURTH GRADERS ASSIGNED TO CLASS BY ABILITY			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	C042501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042501Y (01	) 00		YES
002 C042501N (02	) 10		NO
003 C042501M (M	) 01		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	SCHL0002		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE READING INSTRUCTION		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042601A (01	) 00000		EVERY DAY
002 C042601B (02	) 10000		3-4 TIMES A WEEK
003 C042601C (03	) 01000		ONCE OR TWICE A WEEK
004 C042601D (04	) 00100		LESS THAN ONCE/WEEK
005 C042601N (05	) 00010		SUBJECT NOT TAUGHT
006 C042601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0003		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE WRITING INSTRUCTION		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042602A (01	) 00000		EVERY DAY
002 C042602B (02	) 10000		3-4 TIMES A WEEK
003 C042602C (03	) 01000		ONCE OR TWICE A WEEK
004 C042602D (04	) 00100		LESS THAN ONCE/WEEK
005 C042602N (05	) 00010		SUBJECT NOT TAUGHT
006 C042602M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0004		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE SOC STUDIES INSTRUCT		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042603A (01	) 00000		EVERY DAY
002 C042603B (02	) 10000		3-4 TIMES A WEEK
003 C042603C (03	) 01000		ONCE OR TWICE A WEEK
004 C042603D (04	) 00100		LESS THAN ONCE/WEEK
005 C042603N (05	) 00010		SUBJECT NOT TAUGHT
006 C042603M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0005		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE COMPUTER USE INSTRUCT		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042604A (01	) 00000		EVERY DAY
002 C042604B (02	) 10000		3-4 TIMES A WEEK
003 C042604C (03	) 01000		ONCE OR TWICE A WEEK
004 C042604D (04	) 00100		LESS THAN ONCE/WEEK
005 C042604N (05	) 00010		SUBJECT NOT TAUGHT
006 C042604M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0006		
DESCRIPTION:	DOES SCHOOL USE BLOCK SCHEDULING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 C042701Y (01	) 000		YES-ALL SUBJECTS
002 C042701Y (02	) 100		YES-SOME SUBJECTS
003 C042701N (03	) 010		NO
004 C042701M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	SCHL0007		
DESCRIPTION:	ARE COMPUTERS AVAILABLE IN ALL CLASSROOMS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042801Y (01	) 00		YES
002 C042801N (02	) 10		NO
003 C042801M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0008		
DESCRIPTION:	ARE COMPUTERS AVAILABLE IN COMPUTER LAB		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042802Y (01	) 00		YES
002 C042802N (02	) 10		NO
003 C042802M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0009		
DESCRIPTION:	ARE COMPUTERS AVAILABLE TO CLASSROOM WHEN NEEDED		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042803Y (01	) 00		YES
002 C042803N (02	) 10		NO
003 C042803M (M	) 01		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0010			
DESCRIPTION: HOW MANY COMPUTERS AVAILABLE TO STUDENTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 C042901N (01	) 0000000		NONE
002 C042901B (02	) 1000000		1-10
003 C042901C (03	) 0100000		11-25
004 C042901D (04	) 0010000		26-50
005 C042901E (05	) 0001000		51-75
006 C042901F (06	) 0000100		76-100
007 C042901G (07	) 0000010		MORE THAN 100
008 C042901M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID: SCHL0011			
DESCRIPTION: PRIMARY WAY LIBRARY IS STAFFED			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C036601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C036601N (01	) 0000		NO LIBRARY IN SCHOOL
002 C036601N (02	) 1000		LIBRARY-NO/VOL STAFF
003 C036601C (03	) 0100		PART-TIME STAFF
004 C036601D (04	) 0010		FULL-TIME STAFF
005 C036601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0012			
DESCRIPTION: PARENTS PARTICIPATE-PARENT-TEACHER ORG			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043001A (01	) 00000		NOT AVAILABLE
002 C043001B (02	) 10000		0-10%
003 C043001C (03	) 01000		11-25%
004 C043001D (04	) 00100		26-50%
005 C043001E (05	) 00010		51-100%
006 C043001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0013			
DESCRIPTION: PARENTS PARTICIPATE-OPEN HOUSE			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043002A (01	) 00000		NOT AVAILABLE
002 C043002B (02	) 10000		0-10%
003 C043002C (03	) 01000		11-25%
004 C043002D (04	) 00100		26-50%
005 C043002E (05	) 00010		51-100%
006 C043002M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0014			
DESCRIPTION: PARTICIPATE-PARENT-TEACHER CONFERENCE			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043003A (01	) 00000		NOT AVAILABLE
002 C043003B (02	) 10000		0-10%
003 C043003C (03	) 01000		11-25%
004 C043003D (04	) 00100		26-50%
005 C043003E (05	) 00010		51-100%
006 C043003M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0015			
DESCRIPTION: PARENTS PARTICIPATE-SCHOOL CURRICULUM DECISIONS			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043004A (01	) 00000		NOT AVAILABLE
002 C043004B (02	) 10000		0-10%
003 C043004C (03	) 01000		11-25%
004 C043004D (04	) 00100		26-50%
005 C043004E (05	) 00010		51-100%
006 C043004M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0016			
DESCRIPTION: PARENTS PARTICIPATE-VOLUNTEER PROGRAMS			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043005	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043005A (01	) 00000		NOT AVAILABLE
002 C043005B (02	) 10000		0-10%
003 C043005C (03	) 01000		11-25%
004 C043005D (04	) 00100		26-50%
005 C043005E (05	) 00010		51-100%
006 C043005M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0017			
DESCRIPTION: PARENTS PARTICIPATE-PARENTING-SKILLS PROGRAM			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043006	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043006A (01	) 00000		NOT AVAILABLE
002 C043006B (02	) 10000		0-10%
003 C043006C (03	) 01000		11-25%
004 C043006D (04	) 00100		26-50%
005 C043006E (05	) 00010		51-100%
006 C043006M (M	) 00001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	SCHL0018		
DESCRIPTION:	PARENTS PARTICIPATE-SCHOOL ADVISORY COMMITTEES		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043007	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043007A (01	) 00000		NOT AVAILABLE
002 C043007B (02	) 10000		0-10%
003 C043007C (03	) 01000		11-25%
004 C043007D (04	) 00100		26-50%
005 C043007E (05	) 00010		51-100%
006 C043007M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0019		
DESCRIPTION:	PARENTS PARTICIPATE-CLASSROOM ASSISTANTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043008	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043008A (01	) 00000		NOT AVAILABLE
002 C043008B (02	) 10000		0-10%
003 C043008C (03	) 01000		11-25%
004 C043008D (04	) 00100		26-50%
005 C043008E (05	) 00010		51-100%
006 C043008M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0020		
DESCRIPTION:	IS STUDENT ABSENTEEISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032402A (01	) 0000		SERIOUS
002 C032402B (02	) 1000		MODERATE
003 C032402C (03	) 0100		MINOR
004 C032402N (04	) 0010		NOT A PROBLEM
005 C032402M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0021		
DESCRIPTION:	IS STUDENT TARDINESS A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032401A (01	) 0000		SERIOUS
002 C032401B (02	) 1000		MODERATE
003 C032401C (03	) 0100		MINOR
004 C032401N (04	) 0010		NOT A PROBLEM
005 C032401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0022		
DESCRIPTION:	ARE PHYSICAL CONFLICTS A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032404A (01	) 0000		SERIOUS
002 C032404B (02	) 1000		MODERATE
003 C032404C (03	) 0100		MINOR
004 C032404N (04	) 0010		NOT A PROBLEM
005 C032404M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0023		
DESCRIPTION:	ARE RACIAL/CULT. CONFLICTS A PROBLEM IN SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032407	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032407A (01	) 0000		SERIOUS
002 C032407B (02	) 1000		MODERATE
003 C032407C (03	) 0100		MINOR
004 C032407N (04	) 0010		NOT A PROBLEM
005 C032407M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0024		
DESCRIPTION:	IS STUDENT HEALTH A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032408	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032408A (01	) 0000		SERIOUS
002 C032408B (02	) 1000		MODERATE
003 C032408C (03	) 0100		MINOR
004 C032408N (04	) 0010		NOT A PROBLEM
005 C032408M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0025		
DESCRIPTION:	IS LACK OF PARENT INVOLVMENT A PROBLEM IN SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032409	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032409A (01	) 0000		SERIOUS
002 C032409B (02	) 1000		MODERATE
003 C032409C (03	) 0100		MINOR
004 C032409N (04	) 0010		NOT A PROBLEM
005 C032409M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0026			
DESCRIPTION: IS STUDENT ALCOHOL USE A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032410	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032410A (01	) 0000		SERIOUS
002 C032410B (02	) 1000		MODERATE
003 C032410C (03	) 0100		MINOR
004 C032410N (04	) 0010		NOT A PROBLEM
005 C032410M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0027			
DESCRIPTION: IS STUDENT TOBACCO USE A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032411	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032411A (01	) 0000		SERIOUS
002 C032411B (02	) 1000		MODERATE
003 C032411C (03	) 0100		MINOR
004 C032411N (04	) 0010		NOT A PROBLEM
005 C032411M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0028			
DESCRIPTION: IS STUDENT DRUG USE A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032412	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032412A (01	) 0000		SERIOUS
002 C032412B (02	) 1000		MODERATE
003 C032412C (03	) 0100		MINOR
004 C032412N (04	) 0010		NOT A PROBLEM
005 C032412M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0029			
DESCRIPTION: ARE GANG ACTIVITIES A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032413	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032413A (01	) 0000		SERIOUS
002 C032413B (02	) 1000		MODERATE
003 C032413C (03	) 0100		MINOR
004 C032413N (04	) 0010		NOT A PROBLEM
005 C032413M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0030			
DESCRIPTION: IS STUDENT MISBEHAVIOR A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032414	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032414A (01	) 0000		SERIOUS
002 C032414B (02	) 1000		MODERATE
003 C032414C (03	) 0100		MINOR
004 C032414N (04	) 0010		NOT A PROBLEM
005 C032414M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0031			
DESCRIPTION: IS STUDENT CHEATING A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043101A (01	) 0000		SERIOUS
002 C043101B (02	) 1000		MODERATE
003 C043101C (03	) 0100		MINOR
004 C043101N (04	) 0010		NOT A PROBLEM
005 C043101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0032			
DESCRIPTION: IS TEACHER ABSENTEEISM A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043102A (01	) 0000		SERIOUS
002 C043102B (02	) 1000		MODERATE
003 C043102C (03	) 0100		MINOR
004 C043102N (04	) 0010		NOT A PROBLEM
005 C043102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0033			
DESCRIPTION: ARE PHYSICAL CONFLICTS BETWEEN STUDENTS/TEACHERS			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043103A (01	) 0000		SERIOUS
002 C043103B (02	) 1000		MODERATE
003 C043103C (03	) 0100		MINOR
004 C043103N (04	) 0010		NOT A PROBLEM
005 C043103M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	SCHL0034		
DESCRIPTION:	IS VANDALISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043104	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043104A (01	) 0000		SERIOUS
002 C043104B (02	) 1000		MODERATE
003 C043104C (03	) 0100		MINOR
004 C043104N (04	) 0010		NOT A PROBLEM
005 C043104M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0035		
DESCRIPTION:	TEACHER MORALE		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032502A (01	) 0000		VERY POSITIVE
002 C032502B (02	) 1000		SOMEWHAT POSITIVE
003 C032502C (03	) 0100		SOMEWHAT NEGATIVE
004 C032502D (04	) 0010		VERY NEGATIVE
005 C032502M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0036		
DESCRIPTION:	STUDENT ATTITUDES TOWARD ACADEMIC ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032503A (01	) 0000		VERY POSITIVE
002 C032503B (02	) 1000		SOMEWHAT POSITIVE
003 C032503C (03	) 0100		SOMEWHAT NEGATIVE
004 C032503D (04	) 0010		VERY NEGATIVE
005 C032503M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0037		
DESCRIPTION:	PARENT SUPPORT FOR STUDENT ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032505	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032505A (01	) 0000		VERY POSITIVE
002 C032505B (02	) 1000		SOMEWHAT POSITIVE
003 C032505C (03	) 0100		SOMEWHAT NEGATIVE
004 C032505D (04	) 0010		VERY NEGATIVE
005 C032505M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0038		
DESCRIPTION:	REGARD FOR SCHOOL PROPERTY		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032506	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032506A (01	) 0000		VERY POSITIVE
002 C032506B (02	) 1000		SOMEWHAT POSITIVE
003 C032506C (03	) 0100		SOMEWHAT NEGATIVE
004 C032506D (04	) 0010		VERY NEGATIVE
005 C032506M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0039		
DESCRIPTION:	TEACHERS' EXPECTATIONS FOR STUDENT ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043201A (01	) 0000		VERY POSITIVE
002 C043201B (02	) 1000		SOMEWHAT POSITIVE
003 C043201C (03	) 0100		SOMEWHAT NEGATIVE
004 C043201D (04	) 0010		VERY NEGATIVE
005 C043201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0040		
DESCRIPTION:	PERCENT STUDENT BODY ABSENT AVERAGE DAY		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043301A (01	) 000000		0-2%
002 C043301B (02	) 100000		3-5%
003 C043301C (03	) 010000		6-10%
004 C043301D (04	) 001000		11-25%
005 C043301E (05	) 000100		26-50%
006 C043301F (06	) 000010		MORE THAN 50%
007 C043301M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	SCHL0041		
DESCRIPTION:	PERCENT TEACHING STAFF ABSENT AVERAGE DAY		
GRADES/ASSESSMENTS:	N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043401A (01	) 000000		0-2%
002 C043401B (02	) 100000		3-5%
003 C043401C (03	) 010000		6-10%
004 C043401D (04	) 001000		11-25%
005 C043401E (05	) 000100		26-50%
006 C043401F (06	) 000010		MORE THAN 50%
007 C043401M (M	) 000001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID:		SCHL0042		
DESCRIPTION:		ENROLLMENT LAST YEAR COMPARED TO END OF SCHOOL YR		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C043501	TOTAL NUMBER OF SPECIFIED CONTRASTS:		7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		6
001 C043501A (01	) 000000			98-100%
002 C043501B (02	) 100000			95-97%
003 C043501C (03	) 010000			90-94%
004 C043501D (04	) 001000			80-89%
005 C043501E (05	) 000100			70-79%
006 C043501F (06	) 000010			LESS THAN 70%
007 C043501M (M	) 000001			MISSING
CONDITIONING VARIABLE ID:		SCHL0043		
DESCRIPTION:		PERCENT STUDENTS HELD BACK AND REPEATING GRADE		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C043601	TOTAL NUMBER OF SPECIFIED CONTRASTS:		6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		5
001 C043601A (01	) 00000			0%
002 C043601B (02	) 10000			1-2%
003 C043601C (03	) 01000			3-5%
004 C043601D (04	) 00100			6-10%
005 C043601E (05	) 00010			MORE THAN 10%
006 C043601M (M	) 00001			MISSING
CONDITIONING VARIABLE ID:		SCHL0044		
DESCRIPTION:		PERCENT TEACHING STAFF LEFT BEFORE END OF YEAR		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C043701	TOTAL NUMBER OF SPECIFIED CONTRASTS:		6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		5
001 C043701A (01	) 00000			0%
002 C043701B (02	) 10000			1-2%
003 C043701C (03	) 01000			3-5%
004 C043701D (04	) 00100			6-10%
005 C043701E (05	) 00010			MORE THAN 10%
006 C043701M (M	) 00001			MISSING
CONDITIONING VARIABLE ID:		SCHL0045		
DESCRIPTION:		IS SCHOOL IN NATIONAL SCHOOL LUNCH PROGRAM		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C038301	TOTAL NUMBER OF SPECIFIED CONTRASTS:		3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		2
001 C038301Y (01	) 00			YES
002 C038301N (02	) 10			NO
003 C038301M (M	) 01			MISSING
CONDITIONING VARIABLE ID:		SCHL0046		
DESCRIPTION:		PERCENT ELIGIBLE NATIONAL SCHOOL LUNCH PROGRAM		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C043801	TOTAL NUMBER OF SPECIFIED CONTRASTS:		9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		8
001 C043801A (01	) 00000000			0%
002 C043801B (02	) 10000000			1-5%
003 C043801C (03	) 01000000			6-10%
004 C043801D (04	) 00100000			11-25%
005 C043801E (05	) 00010000			26-50%
006 C043801F (06	) 00001000			51-75%
007 C043801G (07	) 00000100			76-99%
008 C043801H (08	) 00000010			100%
009 C043801M (M	) 00000001			MISSING
CONDITIONING VARIABLE ID:		SCHL0047		
DESCRIPTION:		DOES SCHOOL RECEIVE CHAPTER 1/TITLE I FUNDING		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C043901	TOTAL NUMBER OF SPECIFIED CONTRASTS:		3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		2
001 C043901Y (01	) 00			YES
002 C043901N (02	) 10			NO
003 C043901M (M	) 01			MISSING
CONDITIONING VARIABLE ID:		SCHL0048		
DESCRIPTION:		PERCENT STUDENTS RECEIVE CHAPTER1/TITLE I FUNDING		
GRADES/ASSESSMENTS:		N04, S04, N08, S08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	C044001	TOTAL NUMBER OF SPECIFIED CONTRASTS:		9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:		8
001 C044001N (01	) 00000000			NONE
002 C044001B (02	) 10000000			1-5%
003 C044001C (03	) 01000000			6-10%
004 C044001D (04	) 00100000			11-25%
005 C044001E (05	) 00010000			26-50%
006 C044001F (06	) 00001000			51-75%
007 C044001G (07	) 00000100			76-90%
008 C044001H (08	) 00000010			OVER 90%
009 C044001M (M	) 00000001			MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID: SCHL0049			
DESCRIPTION: PERCENT STUDENTS RECEIVE REMEDIAL READING INSTRUCT			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044002N (01	) 00000000		NONE
002 C044002B (02	) 10000000		1-5%
003 C044002C (03	) 01000000		6-10%
004 C044002D (04	) 00100000		11-25%
005 C044002E (05	) 00010000		26-50%
006 C044002F (06	) 00001000		51-75%
007 C044002G (07	) 00000100		76-90%
008 C044002H (08	) 00000010		OVER 90%
009 C044002M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0050			
DESCRIPTION: PERCENT STUDENTS RECEIVE REMEDIAL WRITING INSTRUCT			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044003N (01	) 00000000		NONE
002 C044003B (02	) 10000000		1-5%
003 C044003C (03	) 01000000		6-10%
004 C044003D (04	) 00100000		11-25%
005 C044003E (05	) 00010000		26-50%
006 C044003F (06	) 00001000		51-75%
007 C044003G (07	) 00000100		76-90%
008 C044003H (08	) 00000010		OVER 90%
009 C044003M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0051			
DESCRIPTION: PERCENT STUDENTS IN GIFTED AND TALENTED PROGRAM			
GRADES/ASSESSMENTS: N04, S04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044004N (01	) 00000000		NONE
002 C044004B (02	) 10000000		1-5%
003 C044004C (03	) 01000000		6-10%
004 C044004D (04	) 00100000		11-25%
005 C044004E (05	) 00010000		26-50%
006 C044004F (06	) 00001000		51-75%
007 C044004G (07	) 00000100		76-90%
008 C044004H (08	) 00000010		OVER 90%
009 C044004M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: BACK0062			
DESCRIPTION: MOTHER'S EDUCATION LEVEL			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B003501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B003501A (01	) 00000		DID NOT FINISH HS
002 B003501B (02	) 10000		GRADUATED HS
003 B003501C (03	) 01000		SOME ED AFTER HS
004 B003501D (04	) 00100		GRADUATED COLLEGE
005 B003501M (M, IDK	) 00001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: BACK0063			
DESCRIPTION: FATHER'S EDUCATION LEVEL			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B003601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B003601A (01	) 00000		DID NOT FINISH HS
002 B003601B (02	) 10000		GRADUATED HS
003 B003601C (03	) 01000		SOME ED AFTER HS
004 B003601D (04	) 00100		GRADUATED COLLEGE
005 B003601M (M, IDK	) 00001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: SUBJ0028			
DESCRIPTION: ASKED TO EXPLAIN UNDERSTANDING OF WHAT YOU READ			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R811010	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811010A (01	) 0000		ALMOST EVERY DAY
002 R811010B (02	) 1000		ONCE/TWICE A WEEK
003 R811010C (03	) 0100		ONCE/TWICE A MONTH
004 R811010D (04	) 0010		NEVER OR HARDLY EVER
005 R811010M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0029			
DESCRIPTION: ASKED TO DISCUSS INTERPRETATIONS OF WHAT YOU READ			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	R811011	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 R811011A (01	) 0000		ALMOST EVERY DAY
002 R811011B (02	) 1000		ONCE/TWICE A WEEK
003 R811011C (03	) 0100		ONCE/TWICE A MONTH
004 R811011D (04	) 0010		NEVER OR HARDLY EVER
005 R811011M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0030			
DESCRIPTION:	DO YOU HAVE ACCESS TO A SCHOOL/PUBLIC LIBRARY			
GRADES/ASSESSMENTS:	N08, S08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	R830201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 R830201Y (01	) 00		YES	
002 R830201N (02	) 10		NO	
003 R830201M (M	) 01		MISSING	
CONDITIONING VARIABLE ID:	SCHL0052			
DESCRIPTION:	8TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	C044401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 C044401Y (01	) 00		YES	
002 C044401N (02	) 10		NO	
003 C044401M (M	) 01		MISSING	
CONDITIONING VARIABLE ID:	SCHL0053			
DESCRIPTION:	8TH GRADE ASSIGNED-HISTORY/SS BY ABILITY			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	C044402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 C044402Y (01	) 00		YES	
002 C044402N (02	) 10		NO	
003 C044402M (M	) 01		MISSING	
CONDITIONING VARIABLE ID:	SCHL0054			
DESCRIPTION:	IS STUDENT DROPOUT A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS:	N08, S08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	C043105	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 C043105A (01	) 0000		SERIOUS	
002 C043105B (02	) 1000		MODERATE	
003 C043105C (03	) 0100		MINOR	
004 C043105N (04	) 0010		NOT A PROBLEM	
005 C043105M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:	SCHL0055			
DESCRIPTION:	IS TEEN PREGNANCY A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS:	N08, S08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	C043106	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 C043106A (01	) 0000		SERIOUS	
002 C043106B (02	) 1000		MODERATE	
003 C043106C (03	) 0100		MINOR	
004 C043106N (04	) 0010		NOT A PROBLEM	
005 C043106M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:	BACK0064			
DESCRIPTION:	MAIN ACTIVITY YEAR FOLLOWING HIGH SCHOOL			
GRADES/ASSESSMENTS:	N12			
CONDITIONING VAR LABEL:				
NAEP ID:	B005501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6	
001 B005501A (01	) 000000		WORK FULL-TIME	
002 B005501B (02	) 100000		VOCA/TECH/BUSINESS	
003 B005501C (03	) 010000		ATTEND 2 YR COLLEGE	
004 B005501D (04	) 001000		ATTEND 4 YR COLLEGE	
005 B005501E (05	) 000100		SERVE IN MILITARY	
006 B005501F (06	) 000010		OTHER	
007 B005501M (M	) 000001		MISSING	
CONDITIONING VARIABLE ID:	SUBJ0031			
DESCRIPTION:	ENROLLED IN OR TOOK AN AP ENGLISH COURSE			
GRADES/ASSESSMENTS:	N12			
CONDITIONING VAR LABEL:				
NAEP ID:	R820201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 R820201Y (01	) 00		YES	
002 R820201N (02	) 10		NO	
003 R820201M (M	) 01		MISSING	
CONDITIONING VARIABLE ID:	SCHL0056			
DESCRIPTION:	12TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY			
GRADES/ASSESSMENTS:	N12			
CONDITIONING VAR LABEL:				
NAEP ID:	C044301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 C044301Y (01	) 00		YES	
002 C044301N (02	) 10		NO	
003 C044301M (M	) 01		MISSING	
CONDITIONING VARIABLE ID:	SCHL0057			
DESCRIPTION:	12TH GR ASSIGNED- HISTORY/CIVICS/SS CLASS ABILITY			
GRADES/ASSESSMENTS:	N12			
CONDITIONING VAR LABEL:				
NAEP ID:	C044302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 C044302Y (01	) 00		YES	
002 C044302N (02	) 10		NO	
003 C044302M (M	) 01		MISSING	

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	SCHL0058		
DESCRIPTION:	PERCENT LAST YEAR'S TWELFTH-GRADE CLASS GRADUATED		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C044101A (01	) 00000		99-100%
002 C044101B (02	) 10000		95-98%
003 C044101C (03	) 01000		90-94%
004 C044101D (04	) 00100		75-89%
005 C044101E (05	) 00010		LESS THAN 75%
006 C044101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0059		
DESCRIPTION:	PERCENT GRADUATING CLASS-ATTEND TWO-YEAR COLLEGE		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044201N (01	) 00000000		NONE
002 C044201B (02	) 10000000		1-5%
003 C044201C (03	) 01000000		6-10%
004 C044201D (04	) 00100000		11-25%
005 C044201E (05	) 00010000		26-50%
006 C044201F (06	) 00001000		51-75%
007 C044201G (07	) 00000100		76-90%
008 C044201H (08	) 00000010		OVER 100%
009 C044201M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID:	SCHL0060		
DESCRIPTION:	PERCENT GRADUATING CLASS-ATTEND FOUR-YEAR COLLEGE		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044202N (01	) 00000000		NONE
002 C044202B (02	) 10000000		1-5%
003 C044202C (03	) 01000000		6-10%
004 C044202D (04	) 00100000		11-25%
005 C044202E (05	) 00010000		26-50%
006 C044202F (06	) 00001000		51-75%
007 C044202G (07	) 00000100		76-90%
008 C044202H (08	) 00000010		OVER 100%
009 C044202M (M	) 00000001		MISSING
009 C044202M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0001		
DESCRIPTION:	DO YOU TEACH READING		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067001Y (01	) 0		YES
002 T067001M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0002		
DESCRIPTION:	DO YOU TEACH WRITING		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067002Y (01	) 0		YES
002 T067002M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0003		
DESCRIPTION:	DO YOU TEACH LANGUAGE ARTS		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067003Y (01	) 0		YES
002 T067003M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0004		
DESCRIPTION:	DO YOU TEACH SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067004Y (01	) 0		YES
002 T067004M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0005		
DESCRIPTION:	YEARS TOTAL TAUGHT ELEMENTARY LEVEL		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067101A (01	) 00000		2 YEARS OR LESS
002 T067101B (02	) 10000		3-5 YEARS
003 T067101C (03	) 01000		6-10 YEARS
004 T067101D (04	) 00100		11-24 YEARS
005 T067101E (05	) 00010		25 YEARS OR MORE
006 T067101M (M	) 00001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0006			
DESCRIPTION: YEARS TOTAL TAUGHT READING			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067201A (01	) 00000		2 YEARS OR LESS
002 T067201B (02	) 10000		3-5 YEARS
003 T067201C (03	) 01000		6-10 YEARS
004 T067201D (04	) 00100		11-24 YEARS
005 T067201E (05	) 00010		25 YEARS OR MORE
006 T067201M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0007			
DESCRIPTION: YEARS TOTAL TAUGHT WRITING			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067202A (01	) 00000		2 YEARS OR LESS
002 T067202B (02	) 10000		3-5 YEARS
003 T067202C (03	) 01000		6-10 YEARS
004 T067202D (04	) 00100		11-24 YEARS
005 T067202E (05	) 00010		25 YEARS OR MORE
006 T067202M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0008			
DESCRIPTION: YEARS TOTAL TAUGHT LANGUAGE ARTS			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067203A (01	) 00000		2 YEARS OR LESS
002 T067203B (02	) 10000		3-5 YEARS
003 T067203C (03	) 01000		6-10 YEARS
004 T067203D (04	) 00100		11-24 YEARS
005 T067203E (05	) 00010		25 YEARS OR MORE
006 T067203M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0009			
DESCRIPTION: YEARS TOTAL TAUGHT HISTORY			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067204	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067204A (01	) 00000		2 YEARS OR LESS
002 T067204B (02	) 10000		3-5 YEARS
003 T067204C (03	) 01000		6-10 YEARS
004 T067204D (04	) 00100		11-24 YEARS
005 T067204E (05	) 00010		25 YEARS OR MORE
006 T067204M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0010			
DESCRIPTION: YEARS TOTAL TAUGHT SOCIAL STUDIES			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067205	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067205A (01	) 00000		2 YEARS OR LESS
002 T067205B (02	) 10000		3-5 YEARS
003 T067205C (03	) 01000		6-10 YEARS
004 T067205D (04	) 00100		11-24 YEARS
005 T067205E (05	) 00010		25 YEARS OR MORE
006 T067205M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0011			
DESCRIPTION: YEARS TOTAL TAUGHT CIVICS			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067206	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067206A (01	) 00000		2 YEARS OR LESS
002 T067206B (02	) 10000		3-5 YEARS
003 T067206C (03	) 01000		6-10 YEARS
004 T067206D (04	) 00100		11-24 YEARS
005 T067206E (05	) 00010		25 YEARS OR MORE
006 T067206M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0012			
DESCRIPTION: MAIN ASSIGNMENT FIELD			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T067301A (01	) 0000		REGULAR CLASSROOM
002 T067301B (02	) 1000		SPECIAL CLASSROOM
003 T067301C (03	) 0100		ESL/BILINGUAL ED
004 T067301D (04	) 0010		OTHER
005 T067301M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0013			
DESCRIPTION: TEACHING CERTIF IN THIS STATE IN MAIN FIELD			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T056201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T056201A (01	) 000000		ADVANCED PROFESSIONL
002 T056201B (02	) 100000		REGULAR/STANDARD ST
003 T056201C (03	) 010000		PROBATIONARY STATE
004 T056201D (04	) 001000		TEMPORARY/PROVISIONL
005 T056201E (05	) 000100		OTHER THAN STATE CRT
006 T056201F (06	) 000010		NOT HAVE CERT MAIN
007 T056201M (M	) 000001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0014		
DESCRIPTION:	HIGHEST ACADEMIC DEGREE YOU HOLD		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T056301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 T056301A (01	) 0000000		HIGH SCHOOL DIPLOMA
002 T056301B (02	) 1000000		ASSOCIATES/VOCATIONL
003 T056301C (03	) 0100000		BACHELOR'S DEGREE
004 T056301D (04	) 0010000		MASTER'S DEGREE
005 T056301E (05	) 0001000		EDUCATION SPECIALIST
006 T056301F (06	) 0000100		DOCTORATE
007 T056301G (07	) 0000010		PROFESSIONAL DEGREE
008 T056301M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0015		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-ELEMENTARY EDUCATION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067501A (01	) 000		MAJOR
002 T067501B (02	) 100		MINOR
003 T067501C (03	) 010		NOT IN THIS SUBJECT
004 T067501M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0016		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-SECONDARY EDUCATION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067502A (01	) 000		MAJOR
002 T067502B (02	) 100		MINOR
003 T067502C (03	) 010		NOT IN THIS SUBJECT
004 T067502M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0017		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-SPECIAL EDUCATION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067503A (01	) 000		MAJOR
002 T067503B (02	) 100		MINOR
003 T067503C (03	) 010		NOT IN THIS SUBJECT
004 T067503M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0018		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067504	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067504A (01	) 000		MAJOR
002 T067504B (02	) 100		MINOR
003 T067504C (03	) 010		NOT IN THIS SUBJECT
004 T067504M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0019		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067505	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067505A (01	) 000		MAJOR
002 T067505B (02	) 100		MINOR
003 T067505C (03	) 010		NOT IN THIS SUBJECT
004 T067505M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0020		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-CURRICULUM & SUPERVISION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067506	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067506A (01	) 000		MAJOR
002 T067506B (02	) 100		MINOR
003 T067506C (03	) 010		NOT IN THIS SUBJECT
004 T067506M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0021		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-COUNSELING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067507	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067507A (01	) 000		MAJOR
002 T067507B (02	) 100		MINOR
003 T067507C (03	) 010		NOT IN THIS SUBJECT
004 T067507M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0022		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-ENGLISH		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067508	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067508A (01	) 000		MAJOR
002 T067508B (02	) 100		MINOR
003 T067508C (03	) 010		NOT IN THIS SUBJECT
004 T067508M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0023			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067509	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067509A (01	) 000		MAJOR
002 T067509B (02	) 100		MINOR
003 T067509C (03	) 010		NOT IN THIS SUBJECT
004 T067509M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0024			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-HISTORY			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067510	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067510A (01	) 000		MAJOR
002 T067510B (02	) 100		MINOR
003 T067510C (03	) 010		NOT IN THIS SUBJECT
004 T067510M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0025			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-POLITICAL SCIENCE			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067511	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067511A (01	) 000		MAJOR
002 T067511B (02	) 100		MINOR
003 T067511C (03	) 010		NOT IN THIS SUBJECT
004 T067511M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0026			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-OTHER			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067512	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067512A (01	) 000		MAJOR
002 T067512B (02	) 100		MINOR
003 T067512C (03	) 010		NOT IN THIS SUBJECT
004 T067512M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0027			
DESCRIPTION: GRAD MAJOR/MINOR-ELEMENTARY EDUCATION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067601A (01	) 000		MAJOR
002 T067601B (02	) 100		MINOR
003 T067601C (03	) 010		NOT IN THIS SUBJECT
004 T067601M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0028			
DESCRIPTION: GRAD MAJOR/MINOR-SECONDARY EDUCATION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067602A (01	) 000		MAJOR
002 T067602B (02	) 100		MINOR
003 T067602C (03	) 010		NOT IN THIS SUBJECT
004 T067602M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0029			
DESCRIPTION: GRAD MAJOR/MINOR-SPECIAL EDUCATION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067603A (01	) 000		MAJOR
002 T067603B (02	) 100		MINOR
003 T067603C (03	) 010		NOT IN THIS SUBJECT
004 T067603M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0030			
DESCRIPTION: GRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067604A (01	) 000		MAJOR
002 T067604B (02	) 100		MINOR
003 T067604C (03	) 010		NOT IN THIS SUBJECT
004 T067604M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0031			
DESCRIPTION: GRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067605	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067605A (01	) 000		MAJOR
002 T067605B (02	) 100		MINOR
003 T067605C (03	) 010		NOT IN THIS SUBJECT
004 T067605M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0032		
DESCRIPTION:	GRAD MAJOR/MINOR-CURRICULUM AND INSTRUCTION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067606	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067606A (01	) 000		MAJOR
002 T067606B (02	) 100		MINOR
003 T067606C (03	) 010		NOT IN THIS SUBJECT
004 T067606M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0033		
DESCRIPTION:	GRAD MAJOR/MINOR-COUNSELING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067607	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067607A (01	) 000		MAJOR
002 T067607B (02	) 100		MINOR
003 T067607C (03	) 010		NOT IN THIS SUBJECT
004 T067607M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0034		
DESCRIPTION:	GRAD MAJOR/MINOR-ENGLISH		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067608	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067608A (01	) 000		MAJOR
002 T067608B (02	) 100		MINOR
003 T067608C (03	) 010		NOT IN THIS SUBJECT
004 T067608M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0035		
DESCRIPTION:	GRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067609	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067609A (01	) 000		MAJOR
002 T067609B (02	) 100		MINOR
003 T067609C (03	) 010		NOT IN THIS SUBJECT
004 T067609M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0036		
DESCRIPTION:	GRAD MAJOR/MINOR-HISTORY		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067610	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067610A (01	) 000		MAJOR
002 T067610B (02	) 100		MINOR
003 T067610C (03	) 010		NOT IN THIS SUBJECT
004 T067610M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0037		
DESCRIPTION:	GRAD MAJOR/MINOR-POLITICAL SCIENCE		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067611	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067611A (01	) 000		MAJOR
002 T067611B (02	) 100		MINOR
003 T067611C (03	) 010		NOT IN THIS SUBJECT
004 T067611M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0038		
DESCRIPTION:	GRAD MAJOR/MINOR-OTHER		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067612	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067612A (01	) 000		MAJOR
002 T067612B (02	) 100		MINOR
003 T067612C (03	) 010		NOT IN THIS SUBJECT
004 T067612M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0039		
DESCRIPTION:	LAST 12 MOS, PROF DEV-READING AND WRITING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067701A (01	) 00000		NONE
002 T067701B (02	) 10000		LESS THAN 6 HOURS
003 T067701C (03	) 01000		6 - 15 HOURS
004 T067701D (04	) 00100		16 - 35 HOURS
005 T067701E (05	) 00010		MORE THAN 35 HOURS
006 T067701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0040		
DESCRIPTION:	LAST 12 MOS, PROF DEV-SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067702A (01	) 00000		NONE
002 T067702B (02	) 10000		LESS THAN 6 HOURS
003 T067702C (03	) 01000		6 - 15 HOURS
004 T067702D (04	) 00100		16 - 35 HOURS
005 T067702E (05	) 00010		MORE THAN 35 HOURS
006 T067702M (M	) 00001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0041			
DESCRIPTION: PREPARED IN THE USE OF TELECOMMUNICATIONS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067801A (01	) 000		WELL PREPARED
002 T067801B (02	) 100		MODERATELY PREPARED
003 T067801C (03	) 010		NOT WELL PREPARED
004 T067801M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0042			
DESCRIPTION: PREPARED IN THE USE OF COMPUTERS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067802A (01	) 000		WELL PREPARED
002 T067802B (02	) 100		MODERATELY PREPARED
003 T067802C (03	) 010		NOT WELL PREPARED
004 T067802M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0043			
DESCRIPTION: PREPARED IN COOPERATIVE GROUP INSTRUCTION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067803A (01	) 000		WELL PREPARED
002 T067803B (02	) 100		MODERATELY PREPARED
003 T067803C (03	) 010		NOT WELL PREPARED
004 T067803M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0044			
DESCRIPTION: PREPARED IN TEACHING STUDENTS-DIFFERENT CULTURES			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067804A (01	) 000		WELL PREPARED
002 T067804B (02	) 100		MODERATELY PREPARED
003 T067804C (03	) 010		NOT WELL PREPARED
004 T067804M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0045			
DESCRIPTION: PREPARED IN TEACHING STUDENTS WHO ARE LEP			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067805A (01	) 000		WELL PREPARED
002 T067805B (02	) 100		MODERATELY PREPARED
003 T067805C (03	) 010		NOT WELL PREPARED
004 T067805M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0046			
DESCRIPTION: PREPARED IN TEACHING STUDENTS WITH DISABILITIES			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067806A (01	) 000		WELL PREPARED
002 T067806B (02	) 100		MODERATELY PREPARED
003 T067806C (03	) 010		NOT WELL PREPARED
004 T067806M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0047			
DESCRIPTION: PREPARED IN CLASSROOM MANAGEMENT AND ORGANIZATION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067807A (01	) 000		WELL PREPARED
002 T067807B (02	) 100		MODERATELY PREPARED
003 T067807C (03	) 010		NOT WELL PREPARED
004 T067807M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0048			
DESCRIPTION: AVAILABILITY OF RESOURCES			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T041201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T041201A (01	) 0000		GET ALL RESOURCES
002 T041201B (02	) 1000		GET MOST RESOURCES
003 T041201C (03	) 0100		GET SOME RESOURCES
004 T041201D (04	) 0010		DON'T GET RESOURCES
005 T041201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0049			
DESCRIPTION: HOW WELL PREPARED TO TEACH READING			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067901A (01	) 000		WELL PREPARED
002 T067901B (02	) 100		MODERATELY PREPARED
003 T067901C (03	) 010		NOT WELL PREPARED
004 T067901M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0050		
DESCRIPTION:	HOW WELL PREPARED TO TEACH WRITING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067902A (01	) 000		WELL PREPARED
002 T067902B (02	) 100		MODERATELY PREPARED
003 T067902C (03	) 010		NOT WELL PREPARED
004 T067902M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0051		
DESCRIPTION:	PREPARED IN LIT-BASED READING INSTRUCTION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068001A (01	) 000		WELL PREPARED
002 T068001B (02	) 100		MODERATELY PREPARED
003 T068001C (03	) 010		NOT WELL PREPARED
004 T068001M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0052		
DESCRIPTION:	PREPARED IN CONTENT AREA READING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068002A (01	) 000		WELL PREPARED
002 T068002B (02	) 100		MODERATELY PREPARED
003 T068002C (03	) 010		NOT WELL PREPARED
004 T068002M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0053		
DESCRIPTION:	PREPARED IN COMBINING RDG AND WRITING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068003A (01	) 000		WELL PREPARED
002 T068003B (02	) 100		MODERATELY PREPARED
003 T068003C (03	) 010		NOT WELL PREPARED
004 T068003M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0054		
DESCRIPTION:	PREPARED IN WHOLE LANGUAGE APPROACH TO TEACH RDG		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068004A (01	) 000		WELL PREPARED
002 T068004B (02	) 100		MODERATELY PREPARED
003 T068004C (03	) 010		NOT WELL PREPARED
004 T068004M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0055		
DESCRIPTION:	PREPARED IN PHONICS IN TEACHING READING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068005	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068005A (01	) 000		WELL PREPARED
002 T068005B (02	) 100		MODERATELY PREPARED
003 T068005C (03	) 010		NOT WELL PREPARED
004 T068005M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0056		
DESCRIPTION:	PREPARED IN TEACHING MULTICULTURAL LITERATURE		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068006	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068006A (01	) 000		WELL PREPARED
002 T068006B (02	) 100		MODERATELY PREPARED
003 T068006C (03	) 010		NOT WELL PREPARED
004 T068006M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0057		
DESCRIPTION:	PREPARED IN COMPUTER SOFTWARE FOR TEACHING RDG		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068007	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068007A (01	) 000		WELL PREPARED
002 T068007B (02	) 100		MODERATELY PREPARED
003 T068007C (03	) 010		NOT WELL PREPARED
004 T068007M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0058		
DESCRIPTION:	PREPARED IN WRITING ACROSS THE CURRICULUM		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068008	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068008A (01	) 000		WELL PREPARED
002 T068008B (02	) 100		MODERATELY PREPARED
003 T068008C (03	) 010		NOT WELL PREPARED
004 T068008M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0059			
DESCRIPTION: PREPARED IN USING COMPUTER SOFTWARE TO TEACH WRITG			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068009	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068009A (01	) 000		WELL PREPARED
002 T068009B (02	) 100		MODERATELY PREPARED
003 T068009C (03	) 010		NOT WELL PREPARED
004 T068009M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0060			
DESCRIPTION: PREPARED IN TEACHING SPELLING, GRAMMAR, MECHANICS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068010	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068010A (01	) 000		WELL PREPARED
002 T068010B (02	) 100		MODERATELY PREPARED
003 T068010C (03	) 010		NOT WELL PREPARED
004 T068010M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0061			
DESCRIPTION: AVERAGE READING CLASS SIZE			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T068101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068101A (01	) 00000		1-20 STUDENTS
002 T068101B (02	) 10000		21-25 STUDENTS
003 T068101C (03	) 01000		26-30 STUDENTS
004 T068101D (04	) 00100		31-35 STUDENTS
005 T068101E (05	) 00010		36 OR MORE STUDENTS
006 T068101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0062			
DESCRIPTION: CLASS ASSIGNMENT BY ABILITY			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T046101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 T046101Y (01	) 00		YES
002 T046101N (02	) 10		NO
003 T046101M (M	) 01		MISSING
CONDITIONING VARIABLE ID: TCHR0063			
DESCRIPTION: ABILITY LEVEL OF STUDENTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T046201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T046201A (01	) 0000		MOSTLY HIGH ABILITY
002 T046201B (02	) 1000		MOSTLY AVERAGE ABLTY
003 T046201C (03	) 0100		MOSTLY LOW ABILITY
004 T046201D (04	) 0010		MIXED ABILITY LEVELS
005 T046201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0064			
DESCRIPTION: HOW MUCH CLASS TIME PER DAY-READING INSTRUCTION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068201A (01	) 00000		LESS THAN 30 MINUTES
002 T068201B (02	) 10000		30-44 MINUTES
003 T068201C (03	) 01000		45-59 MINUTES
004 T068201D (04	) 00100		60-90 MINUTES
005 T068201E (05	) 00010		MORE THAN 90 MINUTES
006 T068201M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0065			
DESCRIPTION: BASIS FOR CREATING READING INSTRUCTIONAL GROUPS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068301A (01	) 00000		ABILITY
002 T068301B (02	) 10000		INTEREST
003 T068301C (03	) 01000		DIVERSITY
004 T068301D (04	) 00100		OTHER
005 T068301E (05	) 00010		NOT CREATED
006 T068301M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0066			
DESCRIPTION: CLASS DIVIDED INTO HOW MANY INSTRUCTIONAL GROUPS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 T068401A (01	) 0000000		WHOLE CLASS
002 T068401B (02	) 1000000		WHOLE W/FLEX GROUP
003 T068401C (03	) 0100000		2 GROUPS
004 T068401D (04	) 0010000		3 GROUPS
005 T068401E (05	) 0001000		4 GROUPS
006 T068401F (06	) 0000100		5 OR MORE GROUPS
007 T068401G (07	) 0000010		INDIVIDUALIZED
008 T068401M (M	) 0000001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0067		
DESCRIPTION:	WRITING ABILITY LEVEL OF CLASS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068601A (01	) 0000		PRIMARILY HIGH
002 T068601B (02	) 1000		PRIMARILY AVERAGE
003 T068601C (03	) 0100		PRIMARILY LOW
004 T068601D (04	) 0010		WIDELY MIXED
005 T068601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0068		
DESCRIPTION:	EACH WEEK, TIME SPENT INSTRUCTING/HELPING-WRITING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068701A (01	) 00000		LESS THAN 30 MINUTES
002 T068701B (02	) 10000		30-44 MINUTES
003 T068701C (03	) 01000		45-59 MINUTES
004 T068701D (04	) 00100		60-90 MINUTES
005 T068701E (05	) 00010		MORE THAN 90 MINUTES
006 T068701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0069		
DESCRIPTION:	HOW OFTEN USE CHILDREN'S NEWSPAPERS/MAGAZINES		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068801A (01	) 0000		ALMOST EVERY DAY
002 T068801B (02	) 1000		ONCE/TWICE A WEEK
003 T068801C (03	) 0100		ONCE/TWICE A MONTH
004 T068801D (04	) 0010		NEVER OR HARDLY EVER
005 T068801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0070		
DESCRIPTION:	HOW OFTEN USE READING KITS TO TEACH READING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068802A (01	) 0000		ALMOST EVERY DAY
002 T068802B (02	) 1000		ONCE/TWICE A WEEK
003 T068802C (03	) 0100		ONCE/TWICE A MONTH
004 T068802D (04	) 0010		NEVER OR HARDLY EVER
005 T068802M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0071		
DESCRIPTION:	HOW OFTEN USE COMPUTER SOFTWARE FOR READING INSTR		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068803A (01	) 0000		ALMOST EVERY DAY
002 T068803B (02	) 1000		ONCE/TWICE A WEEK
003 T068803C (03	) 0100		ONCE/TWICE A MONTH
004 T068803D (04	) 0010		NEVER OR HARDLY EVER
005 T068803M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0072		
DESCRIPTION:	HOW OFTEN USE BOOKS (NOVELS, POETRY, NONFICTION)		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068804A (01	) 0000		ALMOST EVERY DAY
002 T068804B (02	) 1000		ONCE/TWICE A WEEK
003 T068804C (03	) 0100		ONCE/TWICE A MONTH
004 T068804D (04	) 0010		NEVER OR HARDLY EVER
005 T068804M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0073		
DESCRIPTION:	HOW OFTEN USE MATERIALS FROM OTHER SUBJECTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068805A (01	) 0000		ALMOST EVERY DAY
002 T068805B (02	) 1000		ONCE/TWICE A WEEK
003 T068805C (03	) 0100		ONCE/TWICE A MONTH
004 T068805D (04	) 0010		NEVER OR HARDLY EVER
005 T068805M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0074		
DESCRIPTION:	WHAT TYPE OF MATERIALS FORM CORE READING PROGRAM		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068901A (01	) 0000		PRIMARILY BASAL
002 T068901B (02	) 1000		PRIMARILY TRADE BOOK
003 T068901C (03	) 0100		BOTH BASAL AND TRADE
004 T068901D (04	) 0010		OTHER
005 T068901M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0075			
DESCRIPTION: AVAILABILITY OF COMPUTERS FOR USE IN CLASS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T069001A (01	) 0000		NOT AVAILABLE
002 T069001B (02	) 1000		LIMITED ACCESS
003 T069001C (03	) 0100		LAB OR LIBRARY
004 T069001D (04	) 0010		ONE IN CLASSROOM
005 T069001E (05	) 0001		SEVERAL IN CLASSROOM
006 T069001M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0076			
DESCRIPTION: PROPORTION TIME SPENT ON RDG FOR LIT EXPERIENCE			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069101A (01	) 0000		ALMOST ALL TIME
002 T069101B (02	) 1000		TWO-THIRDS OF TIME
003 T069101C (03	) 0100		AT LEAST ONE-THIRD
004 T069101D (04	) 0010		LITTLE OR NO TIME
005 T069101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0077			
DESCRIPTION: PROPORTION TIME SPENT ON RDG TO GAIN INFORMATION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069102A (01	) 0000		ALMOST ALL TIME
002 T069102B (02	) 1000		TWO-THIRDS OF TIME
003 T069102C (03	) 0100		AT LEAST ONE-THIRD
004 T069102D (04	) 0010		LITTLE OR NO TIME
005 T069102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0078			
DESCRIPTION: PROPORTION TIME SPENT ON RDG TO PERFORM A TASK			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069103A (01	) 0000		ALMOST ALL TIME
002 T069103B (02	) 1000		TWO-THIRDS OF TIME
003 T069103C (03	) 0100		AT LEAST ONE-THIRD
004 T069103D (04	) 0010		LITTLE OR NO TIME
005 T069103M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0079			
DESCRIPTION: PROPORTION TIME SPENT ON NARRATIVE WRITING			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069201A (01	) 0000		ALMOST ALL TIME
002 T069201B (02	) 1000		TWO-THIRDS OF TIME
003 T069201C (03	) 0100		AT LEAST ONE-THIRD
004 T069201D (04	) 0010		LITTLE OR NO TIME
005 T069201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0080			
DESCRIPTION: PROPORTION TIME SPENT ON INFORMATIVE WRITING			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069202A (01	) 0000		ALMOST ALL TIME
002 T069202B (02	) 1000		TWO-THIRDS OF TIME
003 T069202C (03	) 0100		AT LEAST ONE-THIRD
004 T069202D (04	) 0010		LITTLE OR NO TIME
005 T069202M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0081			
DESCRIPTION: PROPORTION TIME SPENT ON PERSUASIVE WRITING			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069203A (01	) 0000		ALMOST ALL TIME
002 T069203B (02	) 1000		TWO-THIRDS OF TIME
003 T069203C (03	) 0100		AT LEAST ONE-THIRD
004 T069203D (04	) 0010		LITTLE OR NO TIME
005 T069203M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0082			
DESCRIPTION: DO YOU USE GRAMMAR OR SKILL-BASED INSTRUCTION			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069301A (01	) 000		YES, CENTRAL PART
002 T069301B (02	) 100		YES, SUPPLEMENT PART
003 T069301N (03	) 010		NO
004 T069301M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0083		
DESCRIPTION:	DO YOU USE WRITING PROCESS INSTRUCTION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069302A (01	) 000		YES, CENTRAL PART
002 T069302B (02	) 100		YES, SUPPLEMENT PART
003 T069302N (03	) 010		NO
004 T069302M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0084		
DESCRIPTION:	DO YOU INTEGRATE READING AND WRITING INSTRUCTION		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069303	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069303A (01	) 000		YES, CENTRAL PART
002 T069303B (02	) 100		YES, SUPPLEMENT PART
003 T069303N (03	) 010		NO
004 T069303M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0085		
DESCRIPTION:	DO YOU USE WRITING ABOUT LITERATURE		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069304	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069304A (01	) 000		YES, CENTRAL PART
002 T069304B (02	) 100		YES, SUPPLEMENT PART
003 T069304N (03	) 010		NO
004 T069304M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0086		
DESCRIPTION:	DO YOU USE WRITING ACROSS OTHER SUBJECT AREAS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069305	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069305A (01	) 000		YES, CENTRAL PART
002 T069305B (02	) 100		YES, SUPPLEMENT PART
003 T069305N (03	) 010		NO
004 T069305M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0087		
DESCRIPTION:	HOW OFTEN STUDENTS DO SPELLING, PUNCTUATION, GRAMM		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069401A (01	) 0000		ALMOST EVERY DAY
002 T069401B (02	) 1000		ONCE/TWICE A WEEK
003 T069401C (03	) 0100		ONCE/TWICE A MONTH
004 T069401D (04	) 0010		NEVER OR HARDLY EVER
005 T069401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0088		
DESCRIPTION:	HOW OFTEN STUDENTS WORK ON WRITING PROCESS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069402A (01	) 0000		ALMOST EVERY DAY
002 T069402B (02	) 1000		ONCE/TWICE A WEEK
003 T069402C (03	) 0100		ONCE/TWICE A MONTH
004 T069402D (04	) 0010		NEVER OR HARDLY EVER
005 T069402M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0089		
DESCRIPTION:	HOW OFTEN STUDENTS WRITE IN A LOG/JOURNAL		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069403	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069403A (01	) 0000		ALMOST EVERY DAY
002 T069403B (02	) 1000		ONCE/TWICE A WEEK
003 T069403C (03	) 0100		ONCE/TWICE A MONTH
004 T069403D (04	) 0010		NEVER OR HARDLY EVER
005 T069403M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0090		
DESCRIPTION:	HOW OFTEN PARENTS SIGN/REVIEW STUDENTS' HOMEWORK		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069404A (01	) 0000		ALMOST EVERY DAY
002 T069404B (02	) 1000		ONCE/TWICE A WEEK
003 T069404C (03	) 0100		ONCE/TWICE A MONTH
004 T069404D (04	) 0010		NEVER OR HARDLY EVER
005 T069404M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0091		
DESCRIPTION:	HOW OFTEN ASSIGN HOMEWORK TO DO WITH PARENTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069405	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069405A (01	) 0000		ALMOST EVERY DAY
002 T069405B (02	) 1000		ONCE/TWICE A WEEK
003 T069405C (03	) 0100		ONCE/TWICE A MONTH
004 T069405D (04	) 0010		NEVER OR HARDLY EVER
005 T069405M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0092			
DESCRIPTION: EXPECTED TIME SPENT ON WRITING ASSIGNMENTS/WEEK			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T069501A (01	) 0000		NONE
002 T069501B (02	) 1000		LESS THAN 1 HOUR
003 T069501C (03	) 0100		1 HOUR
004 T069501D (04	) 0010		2 HOURS
005 T069501E (05	) 0001		3 HOURS OR MORE
006 T069501M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0093			
DESCRIPTION: THIS YEAR, PROJECTS TO DO/SHARE WITH PARENTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069601A (01	) 0000		NEVER
002 T069601B (02	) 1000		ONCE
003 T069601C (03	) 0100		TWICE
004 T069601D (04	) 0010		THREE OR MORE TIMES
005 T069601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0094			
DESCRIPTION: HOW OFTEN ASK STUDENTS TO READ ALOUD			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069701A (01	) 0000		ALMOST EVERY DAY
002 T069701B (02	) 1000		ONCE/TWICE A WEEK
003 T069701C (03	) 0100		ONCE/TWICE A MONTH
004 T069701D (04	) 0010		NEVER OR HARDLY EVER
005 T069701M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0095			
DESCRIPTION: HOW OFTEN ASK STUDENTS-DISCUSS WHAT WAS READ			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069702A (01	) 0000		ALMOST EVERY DAY
002 T069702B (02	) 1000		ONCE/TWICE A WEEK
003 T069702C (03	) 0100		ONCE/TWICE A MONTH
004 T069702D (04	) 0010		NEVER OR HARDLY EVER
005 T069702M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0096			
DESCRIPTION: HOW OFTEN ASK STUDENTS- WRITE ABOUT WHAT WAS READ			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069703A (01	) 0000		ALMOST EVERY DAY
002 T069703B (02	) 1000		ONCE/TWICE A WEEK
003 T069703C (03	) 0100		ONCE/TWICE A MONTH
004 T069703D (04	) 0010		NEVER OR HARDLY EVER
005 T069703M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0097			
DESCRIPTION: HOW OFTEN ASK STUDENTS-WRITE IN WORKSHEET/BOOK			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069704	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069704A (01	) 0000		ALMOST EVERY DAY
002 T069704B (02	) 1000		ONCE/TWICE A WEEK
003 T069704C (03	) 0100		ONCE/TWICE A MONTH
004 T069704D (04	) 0010		NEVER OR HARDLY EVER
005 T069704M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0098			
DESCRIPTION: HOW OFTEN ASK STUDENTS-READ SILENTLY			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069705	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069705A (01	) 0000		ALMOST EVERY DAY
002 T069705B (02	) 1000		ONCE/TWICE A WEEK
003 T069705C (03	) 0100		ONCE/TWICE A MONTH
004 T069705D (04	) 0010		NEVER OR HARDLY EVER
005 T069705M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0099			
DESCRIPTION: HOW OFTEN GIVE STUDENTS TIME TO READ BOOKS CHOSEN			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069706	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069706A (01	) 0000		ALMOST EVERY DAY
002 T069706B (02	) 1000		ONCE/TWICE A WEEK
003 T069706C (03	) 0100		ONCE/TWICE A MONTH
004 T069706D (04	) 0010		NEVER OR HARDLY EVER
005 T069706M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0100		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-GROUP ACTIVITY/PROJECT		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069707	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069707A (01	) 0000		ALMOST EVERY DAY
002 T069707B (02	) 1000		ONCE/TWICE A WEEK
003 T069707C (03	) 0100		ONCE/TWICE A MONTH
004 T069707D (04	) 0010		NEVER OR HARDLY EVER
005 T069707M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0101		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-DISCUSS INTERPRETATIONS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069708	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069708A (01	) 0000		ALMOST EVERY DAY
002 T069708B (02	) 1000		ONCE/TWICE A WEEK
003 T069708C (03	) 0100		ONCE/TWICE A MONTH
004 T069708D (04	) 0010		NEVER OR HARDLY EVER
005 T069708M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0102		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-EXPLAIN/SUPPORT WHAT READ		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069709	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069709A (01	) 0000		ALMOST EVERY DAY
002 T069709B (02	) 1000		ONCE/TWICE A WEEK
003 T069709C (03	) 0100		ONCE/TWICE A MONTH
004 T069709D (04	) 0010		NEVER OR HARDLY EVER
005 T069709M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0103		
DESCRIPTION:	HOW OFTEN GIVE READING QUIZZES OR TESTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069710	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069710A (01	) 0000		ALMOST EVERY DAY
002 T069710B (02	) 1000		ONCE/TWICE A WEEK
003 T069710C (03	) 0100		ONCE/TWICE A MONTH
004 T069710D (04	) 0010		NEVER OR HARDLY EVER
005 T069710M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0104		
DESCRIPTION:	HOW OFTEN WATCH MOVIES, VIDEOS, FILMSTRIPS, TV, CD		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069711	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069711A (01	) 0000		ALMOST EVERY DAY
002 T069711B (02	) 1000		ONCE/TWICE A WEEK
003 T069711C (03	) 0100		ONCE/TWICE A MONTH
004 T069711D (04	) 0010		NEVER OR HARDLY EVER
005 T069711M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0105		
DESCRIPTION:	HOW OFTEN HELP STUDENTS UNDERSTAND NEW WORDS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069712	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069712A (01	) 0000		ALMOST EVERY DAY
002 T069712B (02	) 1000		ONCE/TWICE A WEEK
003 T069712C (03	) 0100		ONCE/TWICE A MONTH
004 T069712D (04	) 0010		NEVER OR HARDLY EVER
005 T069712M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0106		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-ANSWER QUESTIONS IN WRITING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069713	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069713A (01	) 0000		ALMOST EVERY DAY
002 T069713B (02	) 1000		ONCE/TWICE A WEEK
003 T069713C (03	) 0100		ONCE/TWICE A MONTH
004 T069713D (04	) 0010		NEVER OR HARDLY EVER
005 T069713M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0107		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-PREDICT OUTCOME OF READING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069714	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069714A (01	) 0000		ALMOST EVERY DAY
002 T069714B (02	) 1000		ONCE/TWICE A WEEK
003 T069714C (03	) 0100		ONCE/TWICE A MONTH
004 T069714D (04	) 0010		NEVER OR HARDLY EVER
005 T069714M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0108			
DESCRIPTION: HOW OFTEN ASK STUDENTS-MAKE GENERALIZATIONS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069715	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069715A (01	) 0000		ALMOST EVERY DAY
002 T069715B (02	) 1000		ONCE/TWICE A WEEK
003 T069715C (03	) 0100		ONCE/TWICE A MONTH
004 T069715D (04	) 0010		NEVER OR HARDLY EVER
005 T069715M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0109			
DESCRIPTION: HOW OFTEN ASK STUDENTS-DESCRIBE STYLE/STRUCTURE			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069716	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069716A (01	) 0000		ALMOST EVERY DAY
002 T069716B (02	) 1000		ONCE/TWICE A WEEK
003 T069716C (03	) 0100		ONCE/TWICE A MONTH
004 T069716D (04	) 0010		NEVER OR HARDLY EVER
005 T069716M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0110			
DESCRIPTION: HOW OFTEN STUDENTS CHOOSE WRITING TOPIC			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071801A (01	) 0000		ALMOST EVERY DAY
002 T071801B (02	) 1000		ONCE/TWICE A WEEK
003 T071801C (03	) 0100		ONCE/TWICE A MONTH
004 T071801D (04	) 0010		NEVER OR HARDLY EVER
005 T071801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0111			
DESCRIPTION: HOW OFTEN STUDENTS PLAN THEIR WRITING			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071802A (01	) 0000		ALMOST EVERY DAY
002 T071802B (02	) 1000		ONCE/TWICE A WEEK
003 T071802C (03	) 0100		ONCE/TWICE A MONTH
004 T071802D (04	) 0010		NEVER OR HARDLY EVER
005 T071802M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0112			
DESCRIPTION: HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071803A (01	) 0000		ALMOST EVERY DAY
002 T071803B (02	) 1000		ONCE/TWICE A WEEK
003 T071803C (03	) 0100		ONCE/TWICE A MONTH
004 T071803D (04	) 0010		NEVER OR HARDLY EVER
005 T071803M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0113			
DESCRIPTION: HOW OFTEN STUDENTS MAKE FORMAL OUTLINE			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071804A (01	) 0000		ALMOST EVERY DAY
002 T071804B (02	) 1000		ONCE/TWICE A WEEK
003 T071804C (03	) 0100		ONCE/TWICE A MONTH
004 T071804D (04	) 0010		NEVER OR HARDLY EVER
005 T071804M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0114			
DESCRIPTION: HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071805A (01	) 0000		ALMOST EVERY DAY
002 T071805B (02	) 1000		ONCE/TWICE A WEEK
003 T071805C (03	) 0100		ONCE/TWICE A MONTH
004 T071805D (04	) 0010		NEVER OR HARDLY EVER
005 T071805M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0115			
DESCRIPTION: HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT			
GRADES/ASSESSMENTS: N04, S04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071806A (01	) 0000		ALMOST EVERY DAY
002 T071806B (02	) 1000		ONCE/TWICE A WEEK
003 T071806C (03	) 0100		ONCE/TWICE A MONTH
004 T071806D (04	) 0010		NEVER OR HARDLY EVER
005 T071806M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0116		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071807A (01	) 0000		ALMOST EVERY DAY
002 T071807B (02	) 1000		ONCE/TWICE A WEEK
003 T071807C (03	) 0100		ONCE/TWICE A MONTH
004 T071807D (04	) 0010		NEVER OR HARDLY EVER
005 T071807M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0117		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071808	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071808A (01	) 0000		ALMOST EVERY DAY
002 T071808B (02	) 1000		ONCE/TWICE A WEEK
003 T071808C (03	) 0100		ONCE/TWICE A MONTH
004 T071808D (04	) 0010		NEVER OR HARDLY EVER
005 T071808M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0118		
DESCRIPTION:	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071809	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071809A (01	) 0000		ALMOST EVERY DAY
002 T071809B (02	) 1000		ONCE/TWICE A WEEK
003 T071809C (03	) 0100		ONCE/TWICE A MONTH
004 T071809D (04	) 0010		NEVER OR HARDLY EVER
005 T071809M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0119		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071810	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071810A (01	) 0000		ALMOST EVERY DAY
002 T071810B (02	) 1000		ONCE/TWICE A WEEK
003 T071810C (03	) 0100		ONCE/TWICE A MONTH
004 T071810D (04	) 0010		NEVER OR HARDLY EVER
005 T071810M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0120		
DESCRIPTION:	HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071811	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071811A (01	) 0000		ALMOST EVERY DAY
002 T071811B (02	) 1000		ONCE/TWICE A WEEK
003 T071811C (03	) 0100		ONCE/TWICE A MONTH
004 T071811D (04	) 0010		NEVER OR HARDLY EVER
005 T071811M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0121		
DESCRIPTION:	HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071812	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071812A (01	) 0000		ALMOST EVERY DAY
002 T071812B (02	) 1000		ONCE/TWICE A WEEK
003 T071812C (03	) 0100		ONCE/TWICE A MONTH
004 T071812D (04	) 0010		NEVER OR HARDLY EVER
005 T071812M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0122		
DESCRIPTION:	HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT		
GRADES/ASSESSMENTS:	N04, S04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071813	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071813A (01	) 0000		ALMOST EVERY DAY
002 T071813B (02	) 1000		ONCE/TWICE A WEEK
003 T071813C (03	) 0100		ONCE/TWICE A MONTH
004 T071813D (04	) 0010		NEVER OR HARDLY EVER
005 T071813M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0123		
DESCRIPTION:	HOW OFTEN WRITING ASSIGNMENTS-LESS THAN ONE PAGE		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069901A (01	) 0000		ALMOST EVERY DAY
002 T069901B (02	) 1000		ONCE/TWICE A WEEK
003 T069901C (03	) 0100		ONCE/TWICE A MONTH
004 T069901D (04	) 0010		NEVER OR HARDLY EVER
005 T069901M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0124			
DESCRIPTION: HOW OFTEN WRITING ASSIGNMENTS-ONE TO TWO PAGES			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069902A (01	) 0000		ALMOST EVERY DAY
002 T069902B (02	) 1000		ONCE/TWICE A WEEK
003 T069902C (03	) 0100		ONCE/TWICE A MONTH
004 T069902D (04	) 0010		NEVER OR HARDLY EVER
005 T069902M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0125			
DESCRIPTION: HOW OFTEN WRITING ASSIGNMENTS-THREE OR MORE PAGES			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069903A (01	) 0000		ALMOST EVERY DAY
002 T069903B (02	) 1000		ONCE/TWICE A WEEK
003 T069903C (03	) 0100		ONCE/TWICE A MONTH
004 T069903D (04	) 0010		NEVER OR HARDLY EVER
005 T069903M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0126			
DESCRIPTION: HOW OFTEN STUDENTS USE COMPUTER-SPELL, PUNC, GRAM			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070001A (01	) 0000		ALMOST EVERY DAY
002 T070001B (02	) 1000		ONCE/TWICE A WEEK
003 T070001C (03	) 0100		ONCE/TWICE A MONTH
004 T070001D (04	) 0010		NEVER OR HARDLY EVER
005 T070001M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0127			
DESCRIPTION: HOW OFTEN STUDENTS USE COMPUTERS-WRITE DRAFTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070002A (01	) 0000		ALMOST EVERY DAY
002 T070002B (02	) 1000		ONCE/TWICE A WEEK
003 T070002C (03	) 0100		ONCE/TWICE A MONTH
004 T070002D (04	) 0010		NEVER OR HARDLY EVER
005 T070002M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0128			
DESCRIPTION: HOW OFTEN STUDENTS USE COMPUTERS-READ STORIES			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070003A (01	) 0000		ALMOST EVERY DAY
002 T070003B (02	) 1000		ONCE/TWICE A WEEK
003 T070003C (03	) 0100		ONCE/TWICE A MONTH
004 T070003D (04	) 0010		NEVER OR HARDLY EVER
005 T070003M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0129			
DESCRIPTION: HOW OFTEN READING ASSESSED-MULTIPLE-CHOICE TESTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070101A (01	) 0000		ONCE/TWICE A WEEK
002 T070101B (02	) 1000		ONCE/TWICE A MONTH
003 T070101C (03	) 0100		ONCE/TWICE A YEAR
004 T070101D (04	) 0010		NEVER OR HARDLY EVER
005 T070101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0130			
DESCRIPTION: HOW OFTEN READING ASSESSED-SHORT-ANSWER TESTS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070102A (01	) 0000		ONCE/TWICE A WEEK
002 T070102B (02	) 1000		ONCE/TWICE A MONTH
003 T070102C (03	) 0100		ONCE/TWICE A YEAR
004 T070102D (04	) 0010		NEVER OR HARDLY EVER
005 T070102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0131			
DESCRIPTION: HOW OFTEN READ ASSESSED-PARAGRAPH WRITTEN RESPONSE			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070103A (01	) 0000		ONCE/TWICE A WEEK
002 T070103B (02	) 1000		ONCE/TWICE A MONTH
003 T070103C (03	) 0100		ONCE/TWICE A YEAR
004 T070103D (04	) 0010		NEVER OR HARDLY EVER
005 T070103M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0132		
DESCRIPTION:	HOW OFTEN STUDENTS ASSESSED-INDIVIDUAL/GROUP PROJ		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070104	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070104A (01	) 0000		ONCE/TWICE A WEEK
002 T070104B (02	) 1000		ONCE/TWICE A MONTH
003 T070104C (03	) 0100		ONCE/TWICE A YEAR
004 T070104D (04	) 0010		NEVER OR HARDLY EVER
005 T070104M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0133		
DESCRIPTION:	HOW OFTEN STUDENTS ASSESSED-READING PORTFOLIOS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070105	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070105A (01	) 0000		ONCE/TWICE A WEEK
002 T070105B (02	) 1000		ONCE/TWICE A MONTH
003 T070105C (03	) 0100		ONCE/TWICE A YEAR
004 T070105D (04	) 0010		NEVER OR HARDLY EVER
005 T070105M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0134		
DESCRIPTION:	HOW OFTEN STUDENTS ASSESSED-ESSAYS/PAPERS ASSIGNED		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070106	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070106A (01	) 0000		ONCE/TWICE A WEEK
002 T070106B (02	) 1000		ONCE/TWICE A MONTH
003 T070106C (03	) 0100		ONCE/TWICE A YEAR
004 T070106D (04	) 0010		NEVER OR HARDLY EVER
005 T070106M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0135		
DESCRIPTION:	HOW OFTEN STUDENTS ASSESSED-ORAL READING		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070107	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070107A (01	) 0000		ONCE/TWICE A WEEK
002 T070107B (02	) 1000		ONCE/TWICE A MONTH
003 T070107C (03	) 0100		ONCE/TWICE A YEAR
004 T070107D (04	) 0010		NEVER OR HARDLY EVER
005 T070107M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0136		
DESCRIPTION:	HOW OFTEN WRITING ASSESSED-MULTIPLE-CHOICE TESTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070201A (01	) 0000		ONCE/TWICE A WEEK
002 T070201B (02	) 1000		ONCE/TWICE A MONTH
003 T070201C (03	) 0100		ONCE/TWICE A YEAR
004 T070201D (04	) 0010		NEVER OR HARDLY EVER
005 T070201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0137		
DESCRIPTION:	HOW OFTEN WRITING ASSESSED-PARAGRAPH WRITTEN		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070202A (01	) 0000		ONCE/TWICE A WEEK
002 T070202B (02	) 1000		ONCE/TWICE A MONTH
003 T070202C (03	) 0100		ONCE/TWICE A YEAR
004 T070202D (04	) 0010		NEVER OR HARDLY EVER
005 T070202M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0138		
DESCRIPTION:	HOW OFTEN WRITING ASSESSED-ESSAYS, REPORTS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070203A (01	) 0000		ONCE/TWICE A WEEK
002 T070203B (02	) 1000		ONCE/TWICE A MONTH
003 T070203C (03	) 0100		ONCE/TWICE A YEAR
004 T070203D (04	) 0010		NEVER OR HARDLY EVER
005 T070203M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0139		
DESCRIPTION:	HOW OFTEN WRITING ASSESSED-WRITING PORTFOLIOS		
GRADES/ASSESSMENTS:	N04, S04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070204	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070204A (01	) 0000		ONCE/TWICE A WEEK
002 T070204B (02	) 1000		ONCE/TWICE A MONTH
003 T070204C (03	) 0100		ONCE/TWICE A YEAR
004 T070204D (04	) 0010		NEVER OR HARDLY EVER
005 T070204M (M	) 0001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0140			
DESCRIPTION: HOW IMPORTANT TO GRADE-SPELLING, GRAMMAR, PUNC			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070301A (01	) 000		VERY IMPORTANT
002 T070301B (02	) 100		MODERATELY IMPORTANT
003 T070301C (03	) 010		UNIMPORTANT
004 T070301M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0141			
DESCRIPTION: HOW IMPORTANT TO GRADE-ORGANIZATION/COHERENCE			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070302A (01	) 000		VERY IMPORTANT
002 T070302B (02	) 100		MODERATELY IMPORTANT
003 T070302C (03	) 010		UNIMPORTANT
004 T070302M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0142			
DESCRIPTION: HOW IMPORTANT TO GRADE-QUALITY/CREATIVITY OF IDEAS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070303	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070303A (01	) 000		VERY IMPORTANT
002 T070303B (02	) 100		MODERATELY IMPORTANT
003 T070303C (03	) 010		UNIMPORTANT
004 T070303M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0143			
DESCRIPTION: HOW IMPORTANT TO GRADE-LENGTH OF PAPERS			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070304	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070304A (01	) 000		VERY IMPORTANT
002 T070304B (02	) 100		MODERATELY IMPORTANT
003 T070304C (03	) 010		UNIMPORTANT
004 T070304M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0144			
DESCRIPTION: HOW IMPORTANT TO GRADE-ACCOMPLISH WRITING PURPOSE			
GRADES/ASSESSMENTS: N04, S04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070305	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070305A (01	) 000		VERY IMPORTANT
002 T070305B (02	) 100		MODERATELY IMPORTANT
003 T070305C (03	) 010		UNIMPORTANT
004 T070305M (M	) 001		MISSING
004 T070305M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0145			
DESCRIPTION: DO YOU TEACH READING			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071601Y (01	) 0		YES
002 T071601M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0146			
DESCRIPTION: DO YOU TEACH WRITING			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071602Y (01	) 0		YES
002 T071602M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0147			
DESCRIPTION: DO YOU TEACH ENGLISH			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071603Y (01	) 0		YES
002 T071603M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0148			
DESCRIPTION: DO YOU TEACH-OTHER			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071604Y (01	) 0		YES
002 T071604M (M	) 1		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:	TCHR0149		
DESCRIPTION:	YEARS TOTAL TAUGHT ELEMENTARY OR SECONDARY		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T040301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T040301A (01	) 00000		2 YEARS OR LESS
002 T040301B (02	) 10000		3-5 YEARS
003 T040301C (03	) 01000		6-10 YEARS
004 T040301D (04	) 00100		11-24 YEARS
005 T040301E (05	) 00010		25 YEARS OR MORE
006 T040301M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0150		
DESCRIPTION:	YEARS TOTAL TAUGHT READING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071701A (01	) 000000		NOT TAUGHT
002 T071701B (02	) 100000		2 YEARS OR LESS
003 T071701C (03	) 010000		3-5 YEARS
004 T071701D (04	) 001000		6-10 YEARS
005 T071701E (05	) 000100		11-24 YEARS
006 T071701F (06	) 000010		25 YEARS OR MORE
007 T071701M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0151		
DESCRIPTION:	YEARS TOTAL TAUGHT WRITING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071702A (01	) 000000		NOT TAUGHT
002 T071702B (02	) 100000		2 YEARS OR LESS
003 T071702C (03	) 010000		3-5 YEARS
004 T071702D (04	) 001000		6-10 YEARS
005 T071702E (05	) 000100		11-24 YEARS
006 T071702F (06	) 000010		25 YEARS OR MORE
007 T071702M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0152		
DESCRIPTION:	YEARS TOTAL TAUGHT ENGLISH		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071703A (01	) 000000		NOT TAUGHT
002 T071703B (02	) 100000		2 YEARS OR LESS
003 T071703C (03	) 010000		3-5 YEARS
004 T071703D (04	) 001000		6-10 YEARS
005 T071703E (05	) 000100		11-24 YEARS
006 T071703F (06	) 000010		25 YEARS OR MORE
007 T071703M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0153		
DESCRIPTION:	YEARS TOTAL TAUGHT- OTHER		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071704	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071704A (01	) 000000		NOT TAUGHT
002 T071704B (02	) 100000		2 YEARS OR LESS
003 T071704C (03	) 010000		3-5 YEARS
004 T071704D (04	) 001000		6-10 YEARS
005 T071704E (05	) 000100		11-24 YEARS
006 T071704F (06	) 000010		25 YEARS OR MORE
007 T071704M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0154		
DESCRIPTION:	LAST 12 MOS, PROF DEV-LITERATURE		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067703A (01	) 00000		NONE
002 T067703B (02	) 10000		LESS THAN 6 HOURS
003 T067703C (03	) 01000		6 - 15 HOURS
004 T067703D (04	) 00100		16 - 35 HOURS
005 T067703E (05	) 00010		MORE THAN 35 HOURS
006 T067703M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0155		
DESCRIPTION:	ARE STUDENTS ASSIGNED TO THIS CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 T068501Y (01	) 00		YES
002 T068501N (02	) 10		NO
003 T068501M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	TCHR0156		
DESCRIPTION:	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069801A (01	) 000		ALWAYS
002 T069801B (02	) 100		SOMETIMES
003 T069801C (03	) 010		NEVER
004 T069801M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0157		
DESCRIPTION:	HOW OFTEN STUDENTS PLAN THEIR WRITING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069802A (01	) 000		ALWAYS
002 T069802B (02	) 100		SOMETIMES
003 T069802C (03	) 010		NEVER
004 T069802M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0158		
DESCRIPTION:	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069803A (01	) 000		ALWAYS
002 T069803B (02	) 100		SOMETIMES
003 T069803C (03	) 010		NEVER
004 T069803M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0159		
DESCRIPTION:	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069804A (01	) 000		ALWAYS
002 T069804B (02	) 100		SOMETIMES
003 T069804C (03	) 010		NEVER
004 T069804M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0160		
DESCRIPTION:	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069805A (01	) 000		ALWAYS
002 T069805B (02	) 100		SOMETIMES
003 T069805C (03	) 010		NEVER
004 T069805M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0161		
DESCRIPTION:	HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069806A (01	) 000		ALWAYS
002 T069806B (02	) 100		SOMETIMES
003 T069806C (03	) 010		NEVER
004 T069806M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0162		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069807A (01	) 000		ALWAYS
002 T069807B (02	) 100		SOMETIMES
003 T069807C (03	) 010		NEVER
004 T069807M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0163		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069808	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069808A (01	) 000		ALWAYS
002 T069808B (02	) 100		SOMETIMES
003 T069808C (03	) 010		NEVER
004 T069808M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0164		
DESCRIPTION:	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069809	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069809A (01	) 000		ALWAYS
002 T069809B (02	) 100		SOMETIMES
003 T069809C (03	) 010		NEVER
004 T069809M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0165		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069810	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069810A (01	) 000		ALWAYS
002 T069810B (02	) 100		SOMETIMES
003 T069810C (03	) 010		NEVER
004 T069810M (M	) 001		MISSING

Table F-5 (continued)
1998 Reading Conditioning Variable Specification

CONDITIONING VARIABLE ID:		TCHR0166			
DESCRIPTION:		HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION			
GRADES/ASSESSMENTS:		N08, S08			
CONDITIONING VAR LABEL:					
NAEP ID:	T069811	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3		
001	T069811A (01) 000		ALWAYS		
002	T069811B (02) 100		SOMETIMES		
003	T069811C (03) 010		NEVER		
004	T069811M (M) 001		MISSING		
CONDITIONING VARIABLE ID:		TCHR0167			
DESCRIPTION:		HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC			
GRADES/ASSESSMENTS:		N08, S08			
CONDITIONING VAR LABEL:					
NAEP ID:	T069812	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3		
001	T069812A (01) 000		ALWAYS		
002	T069812B (02) 100		SOMETIMES		
003	T069812C (03) 010		NEVER		
004	T069812M (M) 001		MISSING		
CONDITIONING VARIABLE ID:		TCHR0168			
DESCRIPTION:		HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT			
GRADES/ASSESSMENTS:		N08, S08			
CONDITIONING VAR LABEL:					
NAEP ID:	T069813	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3		
001	T069813A (01) 000		ALWAYS		
002	T069813B (02) 100		SOMETIMES		
003	T069813C (03) 010		NEVER		
004	T069813M (M) 001		MISSING		
CONDITIONING VARIABLE ID:		TCHR0169			
DESCRIPTION:		WHAT IS THE NUMBER OF STUDENTS IN EACH CLASS? (8TH GRADE)			
GRADES/ASSESSMENTS:		N08			
CONDITIONING VAR LABEL:		CLASSIZ8			
NAEP ID:	TCSIZE	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6		
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5		
001	CLASIZ-1 (1) 00000	AVERAGE CLASS SIZE:	1-20 STUDENTS		
002	CLASIZ-2 (2) 10000	AVERAGE CLASS SIZE:	21-25 STUDENTS		
003	CLASIZ-3 (3) 01000	AVERAGE CLASS SIZE:	26-30 STUDENTS		
004	CLASIZ-4 (4) 00100	AVERAGE CLASS SIZE:	31-35 STUDENTS		
005	CLASIZ-5 (5) 00010	AVERAGE CLASS SIZE:	36 OR MORE STUDENTS		
006	CLASIZ-? (M) 00001	AVERAGE CLASS SIZE:	MISSING, DOES NOT APPLY		

Table F-6
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0001				
DESCRIPTION:	GRAND MEAN				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	OVERALL				
NAEP ID:	BKSER		TOTAL NUMBER OF SPECIFIED CONTRASTS:	1	
TYPE OF CONTRAST:	OTHER		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 OVERALL (@)	1				GRAND MEAN
CONDITIONING VARIABLE ID:	BACK0002				
DESCRIPTION:	DERIVED SEX				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	GENDER				
NAEP ID:	DSEX		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 MALE (1,M)	0				MALE
002 FEMALE (2)	1				FEMALE
CONDITIONING VARIABLE ID:	BACK0003				
DESCRIPTION:	DERIVED RACE/ETHNICITY				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	RACE/ETH				
NAEP ID:	DRACE		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	3	
001 WHI/AI/O (1,5,6,M)	000				RACE/ETHNICITY: WHITE, AMERICAN INDIAN/ALASKAN NATIVE, OTHER, MISSING, UNCLASSIFIED
002 BLACK (2)	100				RACE/ETHNICITY: BLACK
003 HISPANIC (3)	010				RACE/ETHNICITY: HISPANIC
004 ASIAN (4)	001				RACE/ETHNICITY: ASIAN / PACIFIC ISLANDER
CONDITIONING VARIABLE ID:	BACK0004				
DESCRIPTION:	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND?				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	HISPANIC				
NAEP ID:	B003101		TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	4	
001 NOT HISP (1)	0000				HISPANIC: NOT HISPANIC
002 MEXICAN (2)	1000				HISPANIC: MEXICAN, MEXICAN AMERICAN, CHICANO
003 PUER RIC (3)	0100				HISPANIC: PUERTO RICAN
004 CUBN,OTH (4,5)	0010				HISPANIC: CUBAN, OTHER
005 HISP-? (M)	0001				HISPANIC: MISSING
CONDITIONING VARIABLE ID:	BACK0005				
DESCRIPTION:	TOL 7 - TYPE OF LOCATION				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	TOL7				
NAEP ID:	TOL7		TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	6	
001 BIG CTY7 (1)	000000				TOL7: LARGE CITY
002 MID CTY7 (2,M)	100000				TOL7: MID-SIZE CITY
003 FR/LCTY7 (3)	010000				TOL7: URBAN FRINGE OF LARGE CITY
004 FR/MCTY7 (4)	001000				TOL7: URBAN FRINGE OF MID-SIZE CITY
005 LAR TWN7 (5)	000100				TOL7: LARGE TOWN
006 SML TWN7 (6)	000010				TOL7: SMALL TOWN
007 OTHER (7)	000001				TOL7: OTHER
CONDITIONING VARIABLE ID:	BACK0006				
DESCRIPTION:	TYPE OF LOCALE (5 CATEGORIES)				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	TOL5				
NAEP ID:	TOL5		TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	4	
001 BIG CTY5 (1)	0000				TOL5: LARGE CITY
002 MID CTY5 (2,M)	1000				TOL5: MID-SIZE CITY
003 FR/BTWN5 (3)	0100				TOL5: URBAN FRINGE AND LARGE TOWN
004 SML TWN5 (4)	0010				TOL5: SMALL TOWN
005 RURAL5 (5)	0001				TOL5: RURAL (MSA AND NON-MSA)
CONDITIONING VARIABLE ID:	BACK0007				
DESCRIPTION:	PARENTS' HIGHEST LEVEL OF EDUCATION				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	PARED2				
NAEP ID:	PARED2		TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	4	
001 < HS (1)	0000				PARED: LESS THAN HIGH SCHOOL
002 HS GRAD (2)	1000				PARED: HIGH SCHOOL GRADUATE
003 POST HS (3)	0100				PARED: POST HIGH SCHOOL
004 COL GRAD (4)	0010				PARED: COLLEGE GRADUATE
005 PARED-? (5,M)	0001				PARED: MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0008				
DESCRIPTION:	REGION OF THE COUNTRY				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	REGION				
NAEP ID:	REGION		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	3	
001 N EAST (1,M)	000				REGION: NORTHEAST
002 S EAST (2)	100				REGION: SOUTHEAST
003 CENTRAL (3)	010				REGION: CENTRAL
004 WEST (4,5)	001				REGION: WEST, TERRITORIES (NONE)
CONDITIONING VARIABLE ID:	BACK0009				
DESCRIPTION:	SCHOOL TYPE				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	SCHTYPE				
NAEP ID:	SCHTYPE		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 PUBLIC (1)	00				SCHOOL TYPE: PUBLIC,
002 PRIVATE (2,4,5,M)	10				SCHOOL TYPE: PRIVATE, BIA, DEPARTMENT OF DEFENSE, MISSING
003 CATHOLIC (3)	01				SCHOOL TYPE: CATHOLIC

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0010				
DESCRIPTION:	RACE				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	RACE				
NAEP ID:	RACE		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	3	
001 WHI/AI/O (1,5,6,M)	000				RACE: WHITE, AMERICAN INDIAN/ALASKAN NATIVE, OTHER, MISSING, UNCLASSIFIED
002 BLACK (2)	100				RACE: BLACK
003 HISPANIC (3)	010				RACE: HISPANIC
004 ASIAN (4)	001				RACE: ASIAN / PACIFIC ISLANDER
CONDITIONING VARIABLE ID:	BACK0011				
DESCRIPTION:	INDIVIDUALIZED EDUCATION PLAN				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	IEP				
NAEP ID:	IEP		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 IEP-YES (1)	0				IEP: YES
002 IEP-NO (2,M)	1				IEP: NO
CONDITIONING VARIABLE ID:	BACK0012				
DESCRIPTION:	LIMITED ENGLISH PROFICIENCY				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	LEP				
NAEP ID:	LEP		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 LEP-YES (1)	0				LEP: YES
002 LEP-NO (2,M)	1				LEP: NO
CONDITIONING VARIABLE ID:	BACK0013				
DESCRIPTION:	TITLE 1: (BOOK COVER)				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	TITLE 1				
NAEP ID:	TITLE1		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TITLE-Y (1)	0				TITLE 1: YES
002 TITLE-N (2,M)	1				TITLE 1: NO
CONDITIONING VARIABLE ID:	BACK0014				
DESCRIPTION:	DO YOU RECEIVE A FREE OR REDUCED-PRICE LUNCH?				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	LUNCH				
NAEP ID:	SLUNCH		TOTAL NUMBER OF SPECIFIED CONTRASTS:	6	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	5	
001 NOT ELIG (1)	00000				LUNCH PROGRAM: NOT ELIGIBLE
002 RED PRIC (2)	10000				LUNCH PROGRAM: REDUCED PRICE
003 FREE (3)	01000				LUNCH PROGRAM: FREE
004 INFO N/A (4,M)	00100				LUNCH PROGRAM: INFO NOT AVAILABLE
005 SCH/REF (5)	00010				LUNCH PROGRAM: SCHOOL REFUSAL
006 SCH/NP (6)	00001				LUNCH PROGRAM: SCHOOL NOT PARTICIPATE
CONDITIONING VARIABLE ID:	BACK0015				
DESCRIPTION:	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (LINEAR)				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	TWATCHL				
NAEP ID:	B013901		TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:	LINEAR		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TVLIN-0 (1)	0				TV WATCHING (LINEAR) (0 TO 6+ HOURS PER DAY)
002 TVLIN-1 (2)	1				TV WATCHING (LINEAR)
003 TVLIN-2 (3)	2				TV WATCHING (LINEAR)
004 TVLIN-3 (4,M)	3				TV WATCHING (LINEAR)
005 TVLIN-4 (5)	4				TV WATCHING (LINEAR)
006 TVLIN-5 (6)	5				TV WATCHING (LINEAR)
007 TVLIN-6 (7)	6				TV WATCHING (LINEAR)
CONDITIONING VARIABLE ID:	BACK0016				
DESCRIPTION:	HOW MUCH TELEVISION DO YOU USUALLY WATCH EACH DAY? (QUADRATIC)				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	TWATCHQ				
NAEP ID:	B013901		TOTAL NUMBER OF SPECIFIED CONTRASTS:	1	
TYPE OF CONTRAST:	QUADRATIC		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TV-QUAD (1-7,M=4)	1.0 + -2.0*X + 1.0*X**2				TV WATCHING (QUADRATIC)
CONDITIONING VARIABLE ID:	BACK0017				
DESCRIPTION:	HOMEWORK ASSIGNED?: BASED ON TIME SPENT ON HOMEWORK EACH DAY.				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	HWASSIGN				
NAEP ID:	B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 HW-MISS (M)	00				HOMEWORK ASSIGNED?: MISSING
002 HW-NO (1)	10				HOMEWORK ASSIGNED?: NO
003 HW-YES (2-5)	01				HOMEWORK ASSIGNED?: YES
CONDITIONING VARIABLE ID:	BACK0018				
DESCRIPTION:	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY? (LINEAR)				
GRADES/ASSESSMENTS:	N04, N08, S08, N12				
CONDITIONING VAR LABEL:	HOMEWRKL				
NAEP ID:	B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	LINEAR		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 HWLIN-0 (1,2,M)	0				HOMEWORK (LINEAR): DON'T HAVE ANY, DON'T DO ANY, MISSING
002 HWLIN-1 (3)	1				HOMEWORK (LINEAR): 1/2 HOUR OR LESS
003 HWLIN-2 (4)	2				HOMEWORK (LINEAR): 1 HOUR
004 HWLIN-3 (5)	3				HOMEWORK (LINEAR): MORE THAN 1 HOUR

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: BACK0019					
DESCRIPTION: HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY (QUADRATIC)					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: HOMEWRKQ					
NAEP ID: B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4		
TYPE OF CONTRAST: SCALE		NUMBER OF INDEPENDENT CONTRASTS:	1		
001 HWQUAD-0 (1,2,M)	) 0			HOMEWORK (QUADRATIC):	DON'T HAVE ANY, DON'T DO ANY, MISSING
002 HWQUAD-1 (3)	) 1			HOMEWORK (QUADRATIC):	1/2 HOUR OR LESS
003 HWQUAD-2 (4)	) 4			HOMEWORK (QUADRATIC):	1 HOUR
004 HWQUAD-3 (5)	) 9			HOMEWORK (QUADRATIC):	MORE THAN 1 HOUR
CONDITIONING VARIABLE ID: BACK0020					
DESCRIPTION: NUMBER OF ITEMS IN THE HOME (NEWSPAPER, > 25 BOOKS, ENCYCLOPEDIA, MAGAZINES) (DERIVED)					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: HOMEITMS					
NAEP ID: HOMEEN3		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3		
TYPE OF CONTRAST: CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2		
001 HITEM<=2 (1,M)	) 00			ITEMS IN HOME:	ZERO TO TWO ITEMS, MISSING
002 HITEM=3 (2)	) 10			ITEMS IN HOME:	THREE ITEMS
003 HITEM=4 (3)	) 01			ITEMS IN HOME:	FOUR ITEMS
CONDITIONING VARIABLE ID: BACK0021					
DESCRIPTION: ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: PGSREAD1					
NAEP ID: B001101		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST: CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1		
001 PGS<6,? (5,M)	) 0			PAGES READ:	5 OR FEWER A DAY, MISSING
002 PGS>5 (1,2,3,4)	) 1			PAGES READ:	6-10, 11-15, 16-20, 20 OR MORE
CONDITIONING VARIABLE ID: BACK0022					
DESCRIPTION: ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: PGSREAD2					
NAEP ID: B001101		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST: CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1		
001 PGS<11,? (4,5,M)	) 0			PAGES READ:	6-10, 5 OR FEWER A DAY, MISSING
002 PGS>10 (1,2,3)	) 1			PAGES READ:	11-15, 16-20, 20 OR MORE
CONDITIONING VARIABLE ID: BACK0023					
DESCRIPTION: STUDENTS ACCOMMODATION STATUS					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: ACCOM					
NAEP ID: ACCOM		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2		
TYPE OF CONTRAST: CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1		
001 ACC R/W (1,2)	) 0			ACCOMMODATED WITH APPROPRIATE BOOK OR WRONG BOOK	
002 NO ACCOM (3)	) 1			NON ACCOMMODATED	
CONDITIONING VARIABLE ID: BACK0024					
DESCRIPTION: INTERACTION: GENDER BY RACE/ETHNICITY					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: GEND/RAC					
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	8		
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	3		
001 G/R 11 (11)	) 010101			GEND/RAC INTACT:	1. MALE 1. WHI/AI/O
002 G/R 12 (12)	) -10000			GEND/RAC INTACT:	1. MALE 2. BLACK
003 G/R 13 (13)	) 00-100			GEND/RAC INTACT:	1. MALE 3. HISPANIC
004 G/R 14 (14)	) 0000-1			GEND/RAC INTACT:	1. MALE 4. ASIAN
005 G/R 21 (21)	) -1-1-1			GEND/RAC INTACT:	2. FEMALE 1. WHI/AI/O
006 G/R 22 (22)	) 010000			GEND/RAC INTACT:	2. FEMALE 2. BLACK
007 G/R 23 (23)	) 000100			GEND/RAC INTACT:	2. FEMALE 3. HISPANIC
008 G/R 24 (24)	) 000001			GEND/RAC INTACT:	2. FEMALE 4. ASIAN
CONDITIONING VARIABLE ID: BACK0025					
DESCRIPTION: INTERACTION: GENDER BY TYPE OF LOCALE (7 CATEGORIES)					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: GEND/TOL					
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	14		
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	6		
001 G/T 11 (11)	) 010101010101			GEND/TOL INTACT:	1. MALE 1. BIG CTY7
002 G/T 12 (12)	) -100000000000			GEND/TOL INTACT:	1. MALE 2. MID CTY7
003 G/T 13 (13)	) 00-1000000000			GEND/TOL INTACT:	1. MALE 3. FR/LCTY7
004 G/T 14 (14)	) 0000-10000000			GEND/TOL INTACT:	1. MALE 4. FR/MCTY7
005 G/T 15 (15)	) 000000-100000			GEND/TOL INTACT:	1. MALE 5. LAR TWN7
006 G/T 16 (16)	) 00000000-100			GEND/TOL INTACT:	1. MALE 6. SML TWN7
007 G/T 17 (17)	) 0000000000-1			GEND/TOL INTACT:	1. MALE 7. OTHER
008 G/T 21 (21)	) -1-1-1-1-1-1			GEND/TOL INTACT:	2. FEMALE 1. BIG CTY7
009 G/T 22 (22)	) 010000000000			GEND/TOL INTACT:	2. FEMALE 2. MID CTY7
010 G/T 23 (23)	) 000100000000			GEND/TOL INTACT:	2. FEMALE 3. FR/LCTY7
011 G/T 24 (24)	) 000001000000			GEND/TOL INTACT:	2. FEMALE 4. FR/MCTY7
012 G/T 25 (25)	) 000000010000			GEND/TOL INTACT:	2. FEMALE 5. LAR TWN7
013 G/T 26 (26)	) 000000000100			GEND/TOL INTACT:	2. FEMALE 6. SML TWN7
014 G/T 27 (27)	) 000000000001			GEND/TOL INTACT:	2. FEMALE 7. OTHER
CONDITIONING VARIABLE ID: BACK0026					
DESCRIPTION: INTERACTION: GENDER BY PARENTS' EDUCATION					
GRADES/ASSESSMENTS: N04, N08, S08, N12					
CONDITIONING VAR LABEL: GEND/PAR					
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	10		
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	4		
001 G/P 11 (11)	) 01010101			GEND/PAR INTACT:	1. MALE 1. < HS
002 G/P 12 (12)	) -1000000			GEND/PAR INTACT:	1. MALE 2. HS GRAD
003 G/P 13 (13)	) 00-10000			GEND/PAR INTACT:	1. MALE 3. POST HS
004 G/P 14 (14)	) 0000-100			GEND/PAR INTACT:	1. MALE 4. COL GRAD
005 G/P 15 (15)	) 000000-1			GEND/PAR INTACT:	1. MALE 5. PARED-?
006 G/P 21 (21)	) -1-1-1-1			GEND/PAR INTACT:	2. FEMALE 1. < HS
007 G/P 22 (22)	) 01000000			GEND/PAR INTACT:	2. FEMALE 2. HS GRAD
008 G/P 23 (23)	) 00010000			GEND/PAR INTACT:	2. FEMALE 3. POST HS
009 G/P 24 (24)	) 00000100			GEND/PAR INTACT:	2. FEMALE 4. COL GRAD
010 G/P 25 (25)	) 00000001			GEND/PAR INTACT:	2. FEMALE 5. PARED-?

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:		BACK0027			
DESCRIPTION:		INTERACTION: GENDER BY SCHOOL TYPE			
GRADES/ASSESSMENTS:		N04, N08, S08, N12			
CONDITIONING VAR LABEL:		GEND/SCH			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	2
001 G/S 11	(11)	)	0101	GEND/SCH INTACT:	1. MALE 1. PUBLIC
002 G/S 12	(12)	)	-100	GEND/SCH INTACT:	1. MALE 2. PRIVATE
003 G/S 13	(13)	)	00-1	GEND/SCH INTACT:	1. MALE 3. CATHOLIC
004 G/S 21	(21)	)	-1-1	GEND/SCH INTACT:	2. FEMALE 1. PUBLIC
005 G/S 22	(22)	)	0100	GEND/SCH INTACT:	2. FEMALE 2. PRIVATE
006 G/S 23	(23)	)	0001	GEND/SCH INTACT:	2. FEMALE 3. CATHOLIC
CONDITIONING VARIABLE ID:		BACK0028			
DESCRIPTION:		INTERACTION: RACE/ETHNICITY BY TYPE OF LOCALE (7 CATEGORIES)			
GRADES/ASSESSMENTS:		N04, N08, S08, N12			
CONDITIONING VAR LABEL:		RACE/TOL			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	28
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	18
001 R/T 11	(11)	)	01010101010101010101010101010101	RACE/TOL INTACT:	1. WHI/AI/O 1. BIG CTY7
002 R/T 12	(12)	)	-10000000000-10000000000-10000000000	RACE/TOL INTACT:	1. WHI/AI/O 2. MID CTY7
003 R/T 13	(13)	)	00-10000000000-10000000000-10000000000	RACE/TOL INTACT:	1. WHI/AI/O 3. FR/LCTY7
004 R/T 14	(14)	)	0000-10000000000-10000000000-10000000000	RACE/TOL INTACT:	1. WHI/AI/O 4. FR/MCTY7
005 R/T 15	(15)	)	0000000-10000000000-10000000000-10000	RACE/TOL INTACT:	1. WHI/AI/O 5. LAR TWN7
006 R/T 16	(16)	)	00000000-10000000000-10000000000-100	RACE/TOL INTACT:	1. WHI/AI/O 6. SML TWN7
007 R/T 17	(17)	)	0000000000-10000000000-10000000000-1	RACE/TOL INTACT:	1. WHI/AI/O 7. OTHER
008 R/T 21	(21)	)	-1-1-1-1-1-100000000000000000000000000	RACE/TOL INTACT:	2. BLACK 1. BIG CTY7
009 R/T 22	(22)	)	010000000000000000000000000000000000000	RACE/TOL INTACT:	2. BLACK 2. MID CTY7
010 R/T 23	(23)	)	000100000000000000000000000000000000000	RACE/TOL INTACT:	2. BLACK 3. FR/LCTY7
011 R/T 24	(24)	)	000001000000000000000000000000000000000	RACE/TOL INTACT:	2. BLACK 4. FR/MCTY7
012 R/T 25	(25)	)	000000010000000000000000000000000000000	RACE/TOL INTACT:	2. BLACK 5. LAR TWN7
013 R/T 26	(26)	)	000000000100000000000000000000000000000	RACE/TOL INTACT:	2. BLACK 6. SML TWN7
014 R/T 27	(27)	)	000000000001000000000000000000000000000	RACE/TOL INTACT:	2. BLACK 7. OTHER
015 R/T 31	(31)	)	000000000000-1-1-1-1-1-100000000000000	RACE/TOL INTACT:	3. HISPANIC 1. BIG CTY7
016 R/T 32	(32)	)	000000000000010000000000000000000000000	RACE/TOL INTACT:	3. HISPANIC 2. MID CTY7
017 R/T 33	(33)	)	000000000000001000000000000000000000000	RACE/TOL INTACT:	3. HISPANIC 3. FR/LCTY7
018 R/T 34	(34)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	3. HISPANIC 4. FR/MCTY7
019 R/T 35	(35)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	3. HISPANIC 5. LAR TWN7
020 R/T 36	(36)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	3. HISPANIC 6. SML TWN7
021 R/T 37	(37)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	3. HISPANIC 7. OTHER
022 R/T 41	(41)	)	0000000000000000000000000-1-1-1-1-1-1-1	RACE/TOL INTACT:	4. ASIAN 1. BIG CTY7
023 R/T 42	(42)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	4. ASIAN 2. MID CTY7
024 R/T 43	(43)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	4. ASIAN 3. FR/LCTY7
025 R/T 44	(44)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	4. ASIAN 4. FR/MCTY7
026 R/T 45	(45)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	4. ASIAN 5. LAR TWN7
027 R/T 46	(46)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	4. ASIAN 6. SML TWN7
028 R/T 47	(47)	)	000000000000000000000000000000000000000	RACE/TOL INTACT:	4. ASIAN 7. OTHER
CONDITIONING VARIABLE ID:		BACK0029			
DESCRIPTION:		INTERACTION: RACE/ETHNICITY BY PARENTS' EDUCATION			
GRADES/ASSESSMENTS:		N04, N08, S08, N12			
CONDITIONING VAR LABEL:		RACE/PAR			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	20
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	12
001 R/P 11	(11)	)	01010101010101010101010101010101	RACE/PAR INTACT:	1. WHI/AI/O 1. < HS
002 R/P 12	(12)	)	-1000000-1000000-1000000	RACE/PAR INTACT:	1. WHI/AI/O 2. HS GRAD
003 R/P 13	(13)	)	00-1000000-1000000-10000	RACE/PAR INTACT:	1. WHI/AI/O 3. POST HS
004 R/P 14	(14)	)	0000-1000000-1000000-100	RACE/PAR INTACT:	1. WHI/AI/O 4. COL GRAD
005 R/P 15	(15)	)	000000-1000000-1000000-100	RACE/PAR INTACT:	1. WHI/AI/O 5. PARED-?
006 R/P 21	(21)	)	-1-1-1-100000000000000000000	RACE/PAR INTACT:	2. BLACK 1. < HS
007 R/P 22	(22)	)	010000000000000000000000000000000000000	RACE/PAR INTACT:	2. BLACK 2. HS GRAD
008 R/P 23	(23)	)	000100000000000000000000000000000000000	RACE/PAR INTACT:	2. BLACK 3. POST HS
009 R/P 24	(24)	)	000001000000000000000000000000000000000	RACE/PAR INTACT:	2. BLACK 4. COL GRAD
010 R/P 25	(25)	)	000000010000000000000000000000000000000	RACE/PAR INTACT:	2. BLACK 5. PARED-?
011 R/P 31	(31)	)	00000000-1-1-1-100000000	RACE/PAR INTACT:	3. HISPANIC 1. < HS
012 R/P 32	(32)	)	000000000100000000000000000000000000000	RACE/PAR INTACT:	3. HISPANIC 2. HS GRAD
013 R/P 33	(33)	)	000000000001000000000000000000000000000	RACE/PAR INTACT:	3. HISPANIC 3. POST HS
014 R/P 34	(34)	)	000000000000010000000000000000000000000	RACE/PAR INTACT:	3. HISPANIC 4. COL GRAD
015 R/P 35	(35)	)	000000000000000000000000000000000000000	RACE/PAR INTACT:	3. HISPANIC 5. PARED-?
016 R/P 41	(41)	)	0000000000000000-1-1-1-1-1	RACE/PAR INTACT:	4. ASIAN 1. < HS
017 R/P 42	(42)	)	000000000000000000000000000000000000000	RACE/PAR INTACT:	4. ASIAN 2. HS GRAD
018 R/P 43	(43)	)	000000000000000000000000000000000000000	RACE/PAR INTACT:	4. ASIAN 3. POST HS
019 R/P 44	(44)	)	000000000000000000000000000000000000000	RACE/PAR INTACT:	4. ASIAN 4. COL GRAD
020 R/P 45	(45)	)	000000000000000000000000000000000000000	RACE/PAR INTACT:	4. ASIAN 5. PARED-?
CONDITIONING VARIABLE ID:		BACK0030			
DESCRIPTION:		INTERACTION: RACE/ETHNICITY BY SCHOOL TYPE			
GRADES/ASSESSMENTS:		N04, N08, S08, N12			
CONDITIONING VAR LABEL:		RACE/SCH			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	12
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	6
001 R/S 11	(11)	)	01010101010101	RACE/SCH INTACT:	1. WHI/AI/O 1. PUBLIC
002 R/S 12	(12)	)	-100-100-100	RACE/SCH INTACT:	1. WHI/AI/O 2. PRIVATE
003 R/S 13	(13)	)	00-100-100-1	RACE/SCH INTACT:	1. WHI/AI/O 3. CATHOLIC
004 R/S 21	(21)	)	-1-1000000000	RACE/SCH INTACT:	2. BLACK 1. PUBLIC
005 R/S 22	(22)	)	010000000000	RACE/SCH INTACT:	2. BLACK 2. PRIVATE
006 R/S 23	(23)	)	000100000000	RACE/SCH INTACT:	2. BLACK 3. CATHOLIC
007 R/S 31	(31)	)	0000-1-10000	RACE/SCH INTACT:	3. HISPANIC 1. PUBLIC
008 R/S 32	(32)	)	000001000000	RACE/SCH INTACT:	3. HISPANIC 2. PRIVATE
009 R/S 33	(33)	)	000000010000	RACE/SCH INTACT:	3. HISPANIC 3. CATHOLIC
010 R/S 41	(41)	)	00000000-1-1	RACE/SCH INTACT:	4. ASIAN 1. PUBLIC
011 R/S 42	(42)	)	000000000100	RACE/SCH INTACT:	4. ASIAN 2. PRIVATE
012 R/S 43	(43))	000000000001	RACE/SCH INTACT:	4. ASIAN 3. CATHOLIC

Table F-6 (continued)
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CONDITIONING VARIABLE ID:		BACK0035			
DESCRIPTION:		INTERACTION:		ACCOMMODATED BY RACE/ETHNICITY	
GRADES/ASSESSMENTS:		N04, N08, N12			
CONDITIONING VAR LABEL:		ACCO/RAC			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS: 8	
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 3	
001 A/R 11	(11)	)	010101	ACCO/RAC INTACT:	1. ACC R/W 1. WHI/AI/O
002 A/R 12	(12)	)	-10000	ACCO/RAC INTACT:	1. ACC R/W 2. BLACK
003 A/R 13	(13)	)	00-100	ACCO/RAC INTACT:	1. ACC R/W 3. HISPANIC
004 A/R 14	(14)	)	0000-1	ACCO/RAC INTACT:	1. ACC R/W 4. ASIAN
005 A/R 21	(21)	)	-1-1-1	ACCO/RAC INTACT:	2. NO ACCOM 1. WHI/AI/O
006 A/R 22	(22)	)	010000	ACCO/RAC INTACT:	2. NO ACCOM 2. BLACK
007 A/R 23	(23)	)	000100	ACCO/RAC INTACT:	2. NO ACCOM 3. HISPANIC
008 A/R 24	(24)	)	000001	ACCO/RAC INTACT:	2. NO ACCOM 4. ASIAN
CONDITIONING VARIABLE ID:		BACK0036			
DESCRIPTION:		INTERACTION:		ACCOMMODATED BY TYPE OF LOCALE (7 CATEGORIES)	
GRADES/ASSESSMENTS:		N04, N08, N12			
CONDITIONING VAR LABEL:		ACCO/TOL			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS: 14	
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 6	
001 A/T 11	(11)	)	010101010101	ACCO/TOL INTACT:	1. ACC R/W 1. BIG CTY7
002 A/T 12	(12)	)	-100000000000	ACCO/TOL INTACT:	1. ACC R/W 2. MID CTY7
003 A/T 13	(13)	)	00-1000000000	ACCO/TOL INTACT:	1. ACC R/W 3. FR/LCTY7
004 A/T 14	(14)	)	0000-10000000	ACCO/TOL INTACT:	1. ACC R/W 4. FR/MCTY7
005 A/T 15	(15)	)	0000000-10000	ACCO/TOL INTACT:	1. ACC R/W 5. LAR TWN7
006 A/T 16	(16)	)	000000000-100	ACCO/TOL INTACT:	1. ACC R/W 6. SML TWN7
007 A/T 17	(17)	)	00000000000-1	ACCO/TOL INTACT:	1. ACC R/W 7. OTHER
008 A/T 21	(21)	)	-1-1-1-1-1-1	ACCO/TOL INTACT:	2. NO ACCOM 1. BIG CTY7
009 A/T 22	(22)	)	01000000000000	ACCO/TOL INTACT:	2. NO ACCOM 2. MID CTY7
010 A/T 23	(23)	)	00010000000000	ACCO/TOL INTACT:	2. NO ACCOM 3. FR/LCTY7
011 A/T 24	(24)	)	00000100000000	ACCO/TOL INTACT:	2. NO ACCOM 4. FR/MCTY7
012 A/T 25	(25)	)	00000001000000	ACCO/TOL INTACT:	2. NO ACCOM 5. LAR TWN7
013 A/T 26	(26)	)	00000000010000	ACCO/TOL INTACT:	2. NO ACCOM 6. SML TWN7
014 A/T 27	(27)	)	00000000000100	ACCO/TOL INTACT:	2. NO ACCOM 7. OTHER
CONDITIONING VARIABLE ID:		BACK0037			
DESCRIPTION:		INTERACTION:		ACCOMMODATED BY PARENTS' EDUCATION ALL GRADES	
GRADES/ASSESSMENTS:		N04, N08, N12			
CONDITIONING VAR LABEL:		ACCO/PAR			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS: 10	
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 4	
001 A/P 11	(11)	)	01010101	ACCO/PAR INTACT:	1. ACC R/W 1. < HS
002 A/P 12	(12)	)	-10000000	ACCO/PAR INTACT:	1. ACC R/W 2. HS GRAD
003 A/P 13	(13)	)	00-100000	ACCO/PAR INTACT:	1. ACC R/W 3. POST HS
004 A/P 14	(14)	)	0000-100	ACCO/PAR INTACT:	1. ACC R/W 4. COL GRAD
005 A/P 15	(15)	)	0000000-1	ACCO/PAR INTACT:	1. ACC R/W 5. PARED-?
006 A/P 21	(21)	)	-1-1-1-1	ACCO/PAR INTACT:	2. NO ACCOM 1. < HS
007 A/P 22	(22)	)	01000000	ACCO/PAR INTACT:	2. NO ACCOM 2. HS GRAD
008 A/P 23	(23)	)	00010000	ACCO/PAR INTACT:	2. NO ACCOM 3. POST HS
009 A/P 24	(24)	)	00000100	ACCO/PAR INTACT:	2. NO ACCOM 4. COL GRAD
010 A/P 25	(25)	)	00000001	ACCO/PAR INTACT:	2. NO ACCOM 5. PARED-?
CONDITIONING VARIABLE ID:		BACK0038			
DESCRIPTION:		INTERACTION:		ACCOMMODATED BY SCHOOL TYPE	
GRADES/ASSESSMENTS:		N04, N08, N12			
CONDITIONING VAR LABEL:		ACCO/SCH			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS: 6	
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 2	
001 A/S 11	(11)	)	0101	ACCO/SCH INTACT:	1. ACC R/W 1. PUBLIC
002 A/S 12	(12)	)	-100	ACCO/SCH INTACT:	1. ACC R/W 2. PRIVATE
003 A/S 13	(13)	)	00-1	ACCO/SCH INTACT:	1. ACC R/W 3. CATHOLIC
004 A/S 21	(21)	)	-1-1	ACCO/SCH INTACT:	2. NO ACCOM 1. PUBLIC
005 A/S 22	(22)	)	0100	ACCO/SCH INTACT:	2. NO ACCOM 2. PRIVATE
006 A/S 23	(23)	)	0001	ACCO/SCH INTACT:	2. NO ACCOM 3. CATHOLIC
CONDITIONING VARIABLE ID:		BACK0039			
DESCRIPTION:		INTERACTION:		ACCOMMODATED BY IEP	
GRADES/ASSESSMENTS:		N04, N08, N12			
CONDITIONING VAR LABEL:		ACCO/IEP			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS: 4	
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 1	
001 A/I 11	(11)	)	01	ACCO/IEP INTACT:	1. ACC R/W 1. IEP-YES
002 A/I 12	(12)	)	-1	ACCO/IEP INTACT:	1. ACC R/W 2. IEP-NO
003 A/I 21	(21)	)	-1	ACCO/IEP INTACT:	2. NO ACCOM 1. IEP-YES
004 A/I 22	(22)	)	01	ACCO/IEP INTACT:	2. NO ACCOM 2. IEP-NO
CONDITIONING VARIABLE ID:		BACK0040			
DESCRIPTION:		INTERACTION:		ACCOMMODATED BY LEP	
GRADES/ASSESSMENTS:		N04, N08, N12			
CONDITIONING VAR LABEL:		ACCO/LEP			
NAEP ID:		N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS: 4	
TYPE OF CONTRAST:		INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 1	
001 A/L 11	(11)	)	01	ACCO/LEP INTACT:	1. ACC R/W 1. LEP-YES
002 A/L 12	(12)	)	-1	ACCO/LEP INTACT:	1. ACC R/W 2. LEP-NO
003 A/L 21	(21)	)	-1	ACCO/LEP INTACT:	2. NO ACCOM 1. LEP-YES
004 A/L 22	(22)	)	01	ACCO/LEP INTACT:	2. NO ACCOM 2. LEP-NO
CONDITIONING VARIABLE ID:		BACK0044			
DESCRIPTION:		REPORTING SAMPLE			
GRADES/ASSESSMENTS:		N04, N08, S08, N12			
CONDITIONING VAR LABEL:					
NAEP ID:		RPTSAMP		TOTAL NUMBER OF SPECIFIED CONTRASTS: 2	
TYPE OF CONTRAST:		CLASS		NUMBER OF INDEPENDENT CONTRASTS: 1	
001 RPTSAMP	(01))	0	YES	
002 RPT NO	(02))	1	NO	

Table F-6 (continued)
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CONDITIONING VARIABLE ID: BACK0046			
DESCRIPTION: WHICH RACE/ETHNICITY BEST DESCRIBES YOU			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B003001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 WHITE (01)	) 000000	WHITE	
002 BLACK (02)	) 100000	BLACK	
003 HISPANIC (03)	) 010000	HISPANIC	
004 ASIAN AM (04)	) 001000	ASIAN/PACIFIC ISLAND	
005 AMER IND (05)	) 000100	AMER IND/ALASKA NATV	
006 OTHER (06)	) 000010	OTHER	
007 B003001M (M)	) 000001	MISSING	
CONDITIONING VARIABLE ID: BACK0047			
DESCRIPTION: IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B003101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 NOT HISP (01)	) 00000	NOT HISPANIC	
002 MEXICAN (02)	) 10000	MEX,MEX AMER,CHICANO	
003 PUER RIC (03)	) 01000	PUERTO RICAN	
004 CUBAN (04)	) 00100	CUBAN	
005 OTHER (05)	) 00010	OTHER HISPANIC	
006 B003101M (M)	) 00001	MISSING	
CONDITIONING VARIABLE ID: BACK0048			
DESCRIPTION: HOW LONG LIVED IN UNITED STATES			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B013001A (01)	) 0000	ALL MY LIFE	
002 B013001B (02)	) 1000	MORE THAN 5 YEARS	
003 B013001C (03)	) 0100	3-5 YEARS	
004 B013001D (04)	) 0010	LESS THAN 3 YEARS	
005 B013001M (M)	) 0001	MISSING	
CONDITIONING VARIABLE ID: BACK0049			
DESCRIPTION: HOW OFTEN OTHER THAN ENGLISH SPOKEN AT HOME			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B013101A (01)	) 0000	ALL OR MOST OF TIME	
002 B013101B (02)	) 1000	ABOUT HALF OF TIME	
003 B013101C (03)	) 0100	LESS THAN HALF TIME	
004 B013101D (04)	) 0010	NEVER	
005 B013101M (M)	) 0001	MISSING	
CONDITIONING VARIABLE ID: BACK0050			
DESCRIPTION: MOTHER GRADUATED HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013201Y (01)	) 000	YES	
002 B013201N (02)	) 100	NO	
003 B013201M (M, IDK)	) 001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID: BACK0051			
DESCRIPTION: MOTHER HAD SOME EDUCATION AFTER HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013301Y (01)	) 000	YES	
002 B013301N (02)	) 100	NO	
003 B013301M (M, IDK)	) 001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID: BACK0052			
DESCRIPTION: MOTHER GRADUATED COLLEGE			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013401Y (01)	) 000	YES	
002 B013401N (02)	) 100	NO	
003 B013401M (M, IDK)	) 001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID: BACK0053			
DESCRIPTION: FATHER GRADUATED HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013501Y (01)	) 000	YES	
002 B013501N (02)	) 100	NO	
003 B013501M (M, IDK)	) 001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID: BACK0054			
DESCRIPTION: FATHER HAD SOME EDUCATION AFTER HIGH SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B013601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013601Y (01)	) 000	YES	
002 B013601N (02)) 100	NO	
003 B013601M (M, IDK)) 001	MISSING, I DON'T KNOW	

Table F-6 (continued)
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CONDITIONING VARIABLE ID:	BACK0055		
DESCRIPTION:	FATHER GRADUATED COLLEGE		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013701Y (01	) 000		YES
002 B013701N (02	) 100		NO
003 B013701M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0056		
DESCRIPTION:	DOES YOUR FAMILY GET A NEWSPAPER REGULARLY		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B000901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000901Y (01	) 000		YES
002 B000901N (02	) 100		NO
003 B000901M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0057		
DESCRIPTION:	IS THERE AN ENCYCLOPEDIA IN YOUR HOME		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B000903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000903Y (01	) 000		YES
002 B000903N (02	) 100		NO
003 B000903M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0058		
DESCRIPTION:	HOW MANY BOOKS ARE IN YOUR HOME		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B013801A (01	) 0000		0-10 (FEW)
002 B013801B (02	) 1000		11-25 (1 SHELF)
003 B013801C (03	) 0100		26-100 (1 BOOKCASE)
004 B013801D (04	) 0010		>100 (>1 BOOKCASE)
005 B013801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	BACK0059		
DESCRIPTION:	DOES YOUR FAMILY GET MAGAZINES REGULARLY		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B000905	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000905Y (01	) 000		YES
002 B000905N (02	) 100		NO
003 B000905M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0060		
DESCRIPTION:	HOURS OF TV/VIDEO WATCHED ON SCHOOL DAYS		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 B013901N (01	) 0000000		NONE
002 B013901B (02	) 1000000		ONE HOUR OR LESS
003 B013901C (03	) 0100000		2 HOURS
004 B013901D (04	) 0010000		3 HOURS
005 B013901E (05	) 0001000		4 HOURS
006 B013901F (06	) 0000100		5 HOURS
007 B013901G (07	) 0000010		6+ HOURS
008 B013901M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID:	BACK0061		
DESCRIPTION:	TIME SPENT ON HOMEWORK EACH DAY		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B006601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B006601N (01	) 00000		DON'T USUALLY HAVE
002 B006601B (02	) 10000		HAVE BUT DON'T DO
003 B006601C (03	) 01000		1/2 HOUR OR LESS
004 B006601D (04	) 00100		1 HOUR
005 B006601E (05	) 00010		MORE THAN 1 HOUR
006 B006601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	BACK0062		
DESCRIPTION:	HOW MANY PAGES READ IN SCHOOL AND FOR HOMEWORK		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B001101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B001101A (01	) 00000		MORE THAN 20
002 B001101B (02	) 10000		16-20
003 B001101C (03	) 01000		11-15
004 B001101D (04	) 00100		6-10
005 B001101E (05	) 00010		5 OR FEWER
006 B001101M (M	) 00001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: BACK0063			
DESCRIPTION: DAYS ABSENT FROM SCHOOL LAST MONTH			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B014001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B014001N (01	) 00000		NONE
002 B014001B (02	) 10000		1 OR 2 DAYS
003 B014001C (03	) 01000		3 OR 4 DAYS
004 B014001D (04	) 00100		5 TO 9 DAYS
005 B014001E (05	) 00010		10 OR MORE DAYS
006 B014001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: BACK0064			
DESCRIPTION: TIMES CHANGED SCHOOLS IN PAST TWO YEARS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B007301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B007301N (01	) 0000		NONE
002 B007301B (02	) 1000		1
003 B007301C (03	) 0100		2
004 B007301D (04	) 0010		3 OR MORE
005 B007301M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: BACK0065			
DESCRIPTION: HOW OFTEN DISCUSS STUDIES AT HOME			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B007401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B007401A (01	) 0000		ALMOST EVERY DAY
002 B007401B (02	) 1000		ONCE/TWICE A WEEK
003 B007401C (03	) 0100		ONCE/TWICE A MONTH
004 B007401D (04	) 0010		NEVER OR HARDLY EVER
005 B007401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: BACK0066			
DESCRIPTION: HOW OFTEN USE COMPUTER AT HOME FOR SCHOOLWORK			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	B014101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B014101A (01	) 00000		NO COMPUTER AT HOME
002 B014101B (02	) 10000		NEVER OR HARDLY EVER
003 B014101C (03	) 01000		ONCE/TWICE A MONTH
004 B014101D (04	) 00100		ONCE/TWICE A WEEK
005 B014101E (05	) 00010		ALMOST EVERY DAY
006 B014101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SUBJ0001			
DESCRIPTION: HOW HARD TRIED ON THIS WRITING TEST THAN ON OTHERS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W803001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W803001A (01	) 0000		TRIED MUCH HARDER
002 W803001B (02	) 1000		TRIED HARDER
003 W803001C (03	) 0100		TRIED ABOUT AS HARD
004 W803001N (04	) 0010		TRIED NOT AS HARD
005 W803001M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0002			
DESCRIPTION: HOW IMPORTANT TO DO WELL ON THIS WRITING TEST			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W803101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W803101A (01	) 0000		VERY IMPORTANT
002 W803101B (02	) 1000		IMPORTANT
003 W803101C (03	) 0100		SOMEWHAT IMPORTANT
004 W803101N (04	) 0010		NOT VERY IMPORTANT
005 W803101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0003			
DESCRIPTION: HOW OFTEN TAKE ESSAY TEST FOR WHOLE CLASS PERIOD			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W803201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W803201A (01	) 0000		AT LEAST ONCE A WEEK
002 W803201B (02	) 1000		ONCE/TWICE A MONTH
003 W803201C (03	) 0100		ONCE/TWICE A YEAR
004 W803201D (04	) 0010		NEVER
005 W803201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0004			
DESCRIPTION: MY FRIENDS MAKE FUN OF PEOPLE WHO TRY TO DO WELL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W803301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W803301A (01	) 0000		STRONGLY AGREE
002 W803301B (02	) 1000		AGREE
003 W803301C (03	) 0100		DISAGREE
004 W803301D (04	) 0010		STRONGLY DISAGREE
005 W803301M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0005		
DESCRIPTION:	I HAVE FRIENDS TO TALK TO IF NEED HELP W/SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W803302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W803302A (01	) 0000		STRONGLY AGREE
002 W803302B (02	) 1000		AGREE
003 W803302C (03	) 0100		DISAGREE
004 W803302D (04	) 0010		STRONGLY DISAGREE
005 W803302M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0006		
DESCRIPTION:	I LIKE TO WRITE		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W801901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 W801901A (01	) 00000		STRONGLY AGREE
002 W801901B (02	) 10000		AGREE
003 W801901C (03	) 01000		UNDECIDED
004 W801901D (04	) 00100		DISAGREE
005 W801901E (05	) 00010		STRONGLY DISAGREE
006 W801901M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0007		
DESCRIPTION:	I AM GOOD AT WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W801902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 W801902A (01	) 00000		STRONGLY AGREE
002 W801902B (02	) 10000		AGREE
003 W801902C (03	) 01000		UNDECIDED
004 W801902D (04	) 00100		DISAGREE
005 W801902E (05	) 00010		STRONGLY DISAGREE
006 W801902M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0008		
DESCRIPTION:	TEACHER TALKS ABOUT WHAT YOU ARE WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802001A (01	) 000		ALWAYS
002 W802001B (02	) 100		SOMETIMES
003 W802001C (03	) 010		NEVER
004 W802001M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0009		
DESCRIPTION:	TEACHER ASKS TO WRITE MORE THAN ONE DRAFT OF PAPER		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802101A (01	) 000		ALWAYS
002 W802101B (02	) 100		SOMETIMES
003 W802101C (03	) 010		NEVER
004 W802101M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0010		
DESCRIPTION:	TEACHER ASKS TO CONTRIBUTE WRITING TO A COLLECTION		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802201A (01	) 000		ALWAYS
002 W802201B (02	) 100		SOMETIMES
003 W802201C (03	) 010		NEVER
004 W802201M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0011		
DESCRIPTION:	DO SPELLING, PUNCTUATION, GRAMMAR EXERCISES		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802301A (01	) 0000		ALMOST EVERY DAY
002 W802301B (02	) 1000		ONCE/TWICE A WEEK
003 W802301C (03	) 0100		ONCE/TWICE A MONTH
004 W802301D (04	) 0010		NEVER OR HARDLY EVER
005 W802301M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0012		
DESCRIPTION:	HOW OFTEN WRITE A STORY OR REPORT		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802302A (01	) 0000		ALMOST EVERY DAY
002 W802302B (02	) 1000		ONCE/TWICE A WEEK
003 W802302C (03	) 0100		ONCE/TWICE A MONTH
004 W802302D (04	) 0010		NEVER OR HARDLY EVER
005 W802302M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SUBJ0013			
DESCRIPTION: HOW OFTEN WORK IN PAIRS/SMALL GROUPS-WRITING			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802303	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802303A (01	) 0000		ALMOST EVERY DAY
002 W802303B (02	) 1000		ONCE/TWICE A WEEK
003 W802303C (03	) 0100		ONCE/TWICE A MONTH
004 W802303D (04	) 0010		NEVER OR HARDLY EVER
005 W802303M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0014			
DESCRIPTION: HOW OFTEN WRITE IN A LOG/JOURNAL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802304	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802304A (01	) 0000		ALMOST EVERY DAY
002 W802304B (02	) 1000		ONCE/TWICE A WEEK
003 W802304C (03	) 0100		ONCE/TWICE A MONTH
004 W802304D (04	) 0010		NEVER OR HARDLY EVER
005 W802304M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0015			
DESCRIPTION: DO YOU/TEACHER SAVE WRITING-FOLDER/PORTFOLIO			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 W802401Y (01	) 00		YES
002 W802401N (02	) 10		NO
003 W802401M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SUBJ0016			
DESCRIPTION: GRADE/WRITING-SPELLING, PUNCTUATION, GRAMMAR			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802501A (01	) 000		VERY IMPORTANT
002 W802501B (02	) 100		MODERATELY IMPORTANT
003 W802501N (03	) 010		NOT VERY IMPORTANT
004 W802501M (M	) 001		MISSING
CONDITIONING VARIABLE ID: SUBJ0017			
DESCRIPTION: GRADE/WRITING-ORGANIZATION OF PAPER			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802502A (01	) 000		VERY IMPORTANT
002 W802502B (02	) 100		MODERATELY IMPORTANT
003 W802502N (03	) 010		NOT VERY IMPORTANT
004 W802502M (M	) 001		MISSING
CONDITIONING VARIABLE ID: SUBJ0018			
DESCRIPTION: GRADE/WRITING-QUALITY, CREATIVITY OF IDEAS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802503A (01	) 000		VERY IMPORTANT
002 W802503B (02	) 100		MODERATELY IMPORTANT
003 W802503N (03	) 010		NOT VERY IMPORTANT
004 W802503M (M	) 001		MISSING
CONDITIONING VARIABLE ID: SUBJ0019			
DESCRIPTION: GRADE/WRITING-LENGTH OF PAPER			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802504	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 W802504A (01	) 000		VERY IMPORTANT
002 W802504B (02	) 100		MODERATELY IMPORTANT
003 W802504N (03	) 010		NOT VERY IMPORTANT
004 W802504M (M	) 001		MISSING
CONDITIONING VARIABLE ID: SUBJ0020			
DESCRIPTION: ON COMPUTER-DO SPELLING, PUNCTUATION, GRAMMAR			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802601A (01	) 0000		ALMOST EVERY DAY
002 W802601B (02	) 1000		ONCE/TWICE A WEEK
003 W802601C (03	) 0100		ONCE/TWICE A MONTH
004 W802601D (04	) 0010		NEVER OR HARDLY EVER
005 W802601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0021			
DESCRIPTION: ON COMPUTER-WRITE IN A LOG/JOURNAL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802602A (01	) 0000		ALMOST EVERY DAY
002 W802602B (02	) 1000		ONCE/TWICE A WEEK
003 W802602C (03	) 0100		ONCE/TWICE A MONTH
004 W802602D (04	) 0010		NEVER OR HARDLY EVER
005 W802602M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0022		
DESCRIPTION:	ON COMPUTER-WRITE DRAFTS/FINAL VERSIONS OF PAPERS		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802603A (01	) 0000		ALMOST EVERY DAY
002 W802603B (02	) 1000		ONCE/TWICE A WEEK
003 W802603C (03	) 0100		ONCE/TWICE A MONTH
004 W802603D (04	) 0010		NEVER OR HARDLY EVER
005 W802603M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0001		
DESCRIPTION:	FOURTH GRADERS ASSIGNED TO CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042501Y (01	) 00		YES
002 C042501N (02	) 10		NO
003 C042501M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0002		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE READING INSTRUCTION		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042601A (01	) 00000		EVERY DAY
002 C042601B (02	) 10000		3-4 TIMES A WEEK
003 C042601C (03	) 01000		ONCE OR TWICE A WEEK
004 C042601D (04	) 00100		LESS THAN ONCE/WEEK
005 C042601N (05	) 00010		SUBJECT NOT TAUGHT
006 C042601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0003		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE WRITING INSTRUCTION		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042602A (01	) 00000		EVERY DAY
002 C042602B (02	) 10000		3-4 TIMES A WEEK
003 C042602C (03	) 01000		ONCE OR TWICE A WEEK
004 C042602D (04	) 00100		LESS THAN ONCE/WEEK
005 C042602N (05	) 00010		SUBJECT NOT TAUGHT
006 C042602M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0004		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE SOC STUDIES INSTRUCT		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042603A (01	) 00000		EVERY DAY
002 C042603B (02	) 10000		3-4 TIMES A WEEK
003 C042603C (03	) 01000		ONCE OR TWICE A WEEK
004 C042603D (04	) 00100		LESS THAN ONCE/WEEK
005 C042603N (05	) 00010		SUBJECT NOT TAUGHT
006 C042603M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0005		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE COMPUTER USE INSTRUCT		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042604A (01	) 00000		EVERY DAY
002 C042604B (02	) 10000		3-4 TIMES A WEEK
003 C042604C (03	) 01000		ONCE OR TWICE A WEEK
004 C042604D (04	) 00100		LESS THAN ONCE/WEEK
005 C042604N (05	) 00010		SUBJECT NOT TAUGHT
006 C042604M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0006		
DESCRIPTION:	DOES SCHOOL USE BLOCK SCHEDULING		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 C042701Y (01	) 000		YES-ALL SUBJECTS
002 C042701Y (02	) 100		YES-SOME SUBJECTS
003 C042701N (03	) 010		NO
004 C042701M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	SCHL0007		
DESCRIPTION:	ARE COMPUTERS AVAILABLE IN ALL CLASSROOMS		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042801Y (01	) 00		YES
002 C042801N (02	) 10		NO
003 C042801M (M	) 01		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0008			
DESCRIPTION: ARE COMPUTERS AVAILABLE IN COMPUTER LAB			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042802Y (01	) 00		YES
002 C042802N (02	) 10		NO
003 C042802M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0009			
DESCRIPTION: ARE COMPUTERS AVAILABLE TO CLASSROOM WHEN NEEDED			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042803Y (01	) 00		YES
002 C042803N (02	) 10		NO
003 C042803M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0010			
DESCRIPTION: HOW MANY COMPUTERS AVAILABLE TO STUDENTS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 C042901N (01	) 0000000		NONE
002 C042901B (02	) 1000000		1-10
003 C042901C (03	) 0100000		11-25
004 C042901D (04	) 0010000		26-50
005 C042901E (05	) 0001000		51-75
006 C042901F (06	) 0000100		76-100
007 C042901G (07	) 0000010		MORE THAN 100
008 C042901M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID: SCHL0011			
DESCRIPTION: PRIMARY WAY LIBRARY IS STAFFED			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C036601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C036601N (01	) 0000		NO LIBRARY IN SCHOOL
002 C036601N (02	) 1000		LIBRARY-NO/VOL STAFF
003 C036601C (03	) 0100		PART-TIME STAFF
004 C036601D (04	) 0010		FULL-TIME STAFF
005 C036601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0012			
DESCRIPTION: PARENTS PARTICIPATE-PARENT-TEACHER ORG			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043001A (01	) 00000		NOT AVAILABLE
002 C043001B (02	) 10000		0-10%
003 C043001C (03	) 01000		11-25%
004 C043001D (04	) 00100		26-50%
005 C043001E (05	) 00010		51-100%
006 C043001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0013			
DESCRIPTION: PARENTS PARTICIPATE-OPEN HOUSE			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043002A (01	) 00000		NOT AVAILABLE
002 C043002B (02	) 10000		0-10%
003 C043002C (03	) 01000		11-25%
004 C043002D (04	) 00100		26-50%
005 C043002E (05	) 00010		51-100%
006 C043002M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0014			
DESCRIPTION: PARTICIPATE-PARENT-TEACHER CONFERENCE			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043003A (01	) 00000		NOT AVAILABLE
002 C043003B (02	) 10000		0-10%
003 C043003C (03	) 01000		11-25%
004 C043003D (04	) 00100		26-50%
005 C043003E (05	) 00010		51-100%
006 C043003M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0015			
DESCRIPTION: PARENTS PARTICIPATE-SCHOOL CURRICULUM DECISIONS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043004A (01	) 00000		NOT AVAILABLE
002 C043004B (02	) 10000		0-10%
003 C043004C (03	) 01000		11-25%
004 C043004D (04	) 00100		26-50%
005 C043004E (05	) 00010		51-100%
006 C043004M (M	) 00001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0016			
DESCRIPTION: PARENTS PARTICIPATE-VOLUNTEER PROGRAMS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043005	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043005A (01	) 00000		NOT AVAILABLE
002 C043005B (02	) 10000		0-10%
003 C043005C (03	) 01000		11-25%
004 C043005D (04	) 00100		26-50%
005 C043005E (05	) 00010		51-100%
006 C043005M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0017			
DESCRIPTION: PARENTS PARTICIPATE-PARENTING-SKILLS PROGRAM			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043006	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043006A (01	) 00000		NOT AVAILABLE
002 C043006B (02	) 10000		0-10%
003 C043006C (03	) 01000		11-25%
004 C043006D (04	) 00100		26-50%
005 C043006E (05	) 00010		51-100%
006 C043006M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0018			
DESCRIPTION: PARENTS PARTICIPATE-SCHOOL ADVISORY COMMITTEES			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043007	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043007A (01	) 00000		NOT AVAILABLE
002 C043007B (02	) 10000		0-10%
003 C043007C (03	) 01000		11-25%
004 C043007D (04	) 00100		26-50%
005 C043007E (05	) 00010		51-100%
006 C043007M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0019			
DESCRIPTION: PARENTS PARTICIPATE-CLASSROOM ASSISTANTS			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043008	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043008A (01	) 00000		NOT AVAILABLE
002 C043008B (02	) 10000		0-10%
003 C043008C (03	) 01000		11-25%
004 C043008D (04	) 00100		26-50%
005 C043008E (05	) 00010		51-100%
006 C043008M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0020			
DESCRIPTION: IS STUDENT ABSENTEEISM A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032402A (01	) 0000		SERIOUS
002 C032402B (02	) 1000		MODERATE
003 C032402C (03	) 0100		MINOR
004 C032402N (04	) 0010		NOT A PROBLEM
005 C032402M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0021			
DESCRIPTION: IS STUDENT TARDINESS A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032401A (01	) 0000		SERIOUS
002 C032401B (02	) 1000		MODERATE
003 C032401C (03	) 0100		MINOR
004 C032401N (04	) 0010		NOT A PROBLEM
005 C032401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0022			
DESCRIPTION: ARE PHYSICAL CONFLICTS A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032404A (01	) 0000		SERIOUS
002 C032404B (02	) 1000		MODERATE
003 C032404C (03	) 0100		MINOR
004 C032404N (04	) 0010		NOT A PROBLEM
005 C032404M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0023			
DESCRIPTION: ARE RACIAL/CULT. CONFLICTS A PROBLEM IN SCHOOL			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032407	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032407A (01	) 0000		SERIOUS
002 C032407B (02	) 1000		MODERATE
003 C032407C (03	) 0100		MINOR
004 C032407N (04	) 0010		NOT A PROBLEM
005 C032407M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:		SCHL0024	
DESCRIPTION:		IS STUDENT HEALTH A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032408	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032408A (01	) 0000		SERIOUS
002 C032408B (02	) 1000		MODERATE
003 C032408C (03	) 0100		MINOR
004 C032408N (04	) 0010		NOT A PROBLEM
005 C032408M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0025	
DESCRIPTION:		IS LACK OF PARENT INVLMNT A PROBLEM IN SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032409	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032409A (01	) 0000		SERIOUS
002 C032409B (02	) 1000		MODERATE
003 C032409C (03	) 0100		MINOR
004 C032409N (04	) 0010		NOT A PROBLEM
005 C032409M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0026	
DESCRIPTION:		IS STUDENT ALCOHOL USE A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032410	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032410A (01	) 0000		SERIOUS
002 C032410B (02	) 1000		MODERATE
003 C032410C (03	) 0100		MINOR
004 C032410N (04	) 0010		NOT A PROBLEM
005 C032410M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0027	
DESCRIPTION:		IS STUDENT TOBACCO USE A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032411	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032411A (01	) 0000		SERIOUS
002 C032411B (02	) 1000		MODERATE
003 C032411C (03	) 0100		MINOR
004 C032411N (04	) 0010		NOT A PROBLEM
005 C032411M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0028	
DESCRIPTION:		IS STUDENT DRUG USE A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032412	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032412A (01	) 0000		SERIOUS
002 C032412B (02	) 1000		MODERATE
003 C032412C (03	) 0100		MINOR
004 C032412N (04	) 0010		NOT A PROBLEM
005 C032412M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0029	
DESCRIPTION:		ARE GANG ACTIVITIES A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032413	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032413A (01	) 0000		SERIOUS
002 C032413B (02	) 1000		MODERATE
003 C032413C (03	) 0100		MINOR
004 C032413N (04	) 0010		NOT A PROBLEM
005 C032413M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0030	
DESCRIPTION:		IS STUDENT MISBEHAVIOR A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C032414	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032414A (01	) 0000		SERIOUS
002 C032414B (02	) 1000		MODERATE
003 C032414C (03	) 0100		MINOR
004 C032414N (04	) 0010		NOT A PROBLEM
005 C032414M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:		SCHL0031	
DESCRIPTION:		IS STUDENT CHEATING A PROBLEM IN YOUR SCHOOL	
GRADES/ASSESSMENTS:		N04, N08, S08, N12	
CONDITIONING VAR LABEL:			
NAEP ID:	C043101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043101A (01	) 0000		SERIOUS
002 C043101B (02	) 1000		MODERATE
003 C043101C (03	) 0100		MINOR
004 C043101N (04	) 0010		NOT A PROBLEM
005 C043101M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SCHL0032		
DESCRIPTION:	IS TEACHER ABSENTEEISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043102A (01	) 0000		SERIOUS
002 C043102B (02	) 1000		MODERATE
003 C043102C (03	) 0100		MINOR
004 C043102N (04	) 0010		NOT A PROBLEM
005 C043102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0033		
DESCRIPTION:	ARE PHYSICAL CONFLICTS BETWEEN STUDENTS/TEACHERS		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043103A (01	) 0000		SERIOUS
002 C043103B (02	) 1000		MODERATE
003 C043103C (03	) 0100		MINOR
004 C043103N (04	) 0010		NOT A PROBLEM
005 C043103M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0034		
DESCRIPTION:	IS VANDALISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043104	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043104A (01	) 0000		SERIOUS
002 C043104B (02	) 1000		MODERATE
003 C043104C (03	) 0100		MINOR
004 C043104N (04	) 0010		NOT A PROBLEM
005 C043104M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0035		
DESCRIPTION:	TEACHER MORALE		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032502A (01	) 0000		VERY POSITIVE
002 C032502B (02	) 1000		SOMEWHAT POSITIVE
003 C032502C (03	) 0100		SOMEWHAT NEGATIVE
004 C032502D (04	) 0010		VERY NEGATIVE
005 C032502M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0036		
DESCRIPTION:	STUDENT ATTITUDES TOWARD ACADEMIC ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032503A (01	) 0000		VERY POSITIVE
002 C032503B (02	) 1000		SOMEWHAT POSITIVE
003 C032503C (03	) 0100		SOMEWHAT NEGATIVE
004 C032503D (04	) 0010		VERY NEGATIVE
005 C032503M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0037		
DESCRIPTION:	PARENT SUPPORT FOR STUDENT ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032505	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032505A (01	) 0000		VERY POSITIVE
002 C032505B (02	) 1000		SOMEWHAT POSITIVE
003 C032505C (03	) 0100		SOMEWHAT NEGATIVE
004 C032505D (04	) 0010		VERY NEGATIVE
005 C032505M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0038		
DESCRIPTION:	REGARD FOR SCHOOL PROPERTY		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032506	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032506A (01	) 0000		VERY POSITIVE
002 C032506B (02	) 1000		SOMEWHAT POSITIVE
003 C032506C (03	) 0100		SOMEWHAT NEGATIVE
004 C032506D (04	) 0010		VERY NEGATIVE
005 C032506M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0039		
DESCRIPTION:	TEACHERS' EXPECTATIONS FOR STUDENT ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043201A (01	) 0000		VERY POSITIVE
002 C043201B (02	) 1000		SOMEWHAT POSITIVE
003 C043201C (03	) 0100		SOMEWHAT NEGATIVE
004 C043201D (04	) 0010		VERY NEGATIVE
005 C043201M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0040			
DESCRIPTION: PERCENT STUDENT BODY ABSENT AVERAGE DAY			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043301A (01	) 000000		0-2%
002 C043301B (02	) 100000		3-5%
003 C043301C (03	) 010000		6-10%
004 C043301D (04	) 001000		11-25%
005 C043301E (05	) 000100		26-50%
006 C043301F (06	) 000010		MORE THAN 50%
007 C043301M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SCHL0041			
DESCRIPTION: PERCENT TEACHING STAFF ABSENT AVERAGE DAY			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043401A (01	) 000000		0-2%
002 C043401B (02	) 100000		3-5%
003 C043401C (03	) 010000		6-10%
004 C043401D (04	) 001000		11-25%
005 C043401E (05	) 000100		26-50%
006 C043401F (06	) 000010		MORE THAN 50%
007 C043401M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SCHL0042			
DESCRIPTION: ENROLLMENT LAST YEAR COMPARED TO END OF SCHOOL YR			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043501A (01	) 000000		98-100%
002 C043501B (02	) 100000		95-97%
003 C043501C (03	) 010000		90-94%
004 C043501D (04	) 001000		80-89%
005 C043501E (05	) 000100		70-79%
006 C043501F (06	) 000010		LESS THAN 70%
007 C043501M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SCHL0043			
DESCRIPTION: PERCENT STUDENTS HELD BACK AND REPEATING GRADE			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043601A (01	) 00000		0%
002 C043601B (02	) 10000		1-2%
003 C043601C (03	) 01000		3-5%
004 C043601D (04	) 00100		6-10%
005 C043601E (05	) 00010		MORE THAN 10%
006 C043601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0044			
DESCRIPTION: PERCENT TEACHING STAFF LEFT BEFORE END OF YEAR			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043701A (01	) 00000		0%
002 C043701B (02	) 10000		1-2%
003 C043701C (03	) 01000		3-5%
004 C043701D (04	) 00100		6-10%
005 C043701E (05	) 00010		MORE THAN 10%
006 C043701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0045			
DESCRIPTION: IS SCHOOL IN NATIONAL SCHOOL LUNCH PROGRAM			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C038301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C038301Y (01	) 00		YES
002 C038301N (02	) 10		NO
003 C038301M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0046			
DESCRIPTION: PERCENT ELIGIBLE NATIONAL SCHOOL LUNCH PROGRAM			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C043801A (01	) 00000000		0%
002 C043801B (02	) 10000000		1-5%
003 C043801C (03	) 01000000		6-10%
004 C043801D (04	) 00100000		11-25%
005 C043801E (05	) 00010000		26-50%
006 C043801F (06	) 00001000		51-75%
007 C043801G (07	) 00000100		76-99%
008 C043801H (08	) 00000010		100%
009 C043801M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0047			
DESCRIPTION: DOES SCHOOL RECEIVE CHAPTER 1/TITLE I FUNDING			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C043901Y (01	) 00		YES
002 C043901N (02	) 10		NO
003 C043901M (M	) 01		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0048			
DESCRIPTION: PERCENT STUDENTS RECEIVE CHAPTER1/TITLE I FUNDING			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044001N (01	) 00000000	NONE	
002 C044001B (02	) 10000000	1-5%	
003 C044001C (03	) 01000000	6-10%	
004 C044001D (04	) 00100000	11-25%	
005 C044001E (05	) 00010000	26-50%	
006 C044001F (06	) 00001000	51-75%	
007 C044001G (07	) 00000100	76-90%	
008 C044001H (08	) 00000010	OVER 90%	
009 C044001M (M	) 00000001	MISSING	
CONDITIONING VARIABLE ID: SCHL0049			
DESCRIPTION: PERCENT STUDENTS RECEIVE REMEDIAL READING INSTRUCT			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044002N (01	) 00000000	NONE	
002 C044002B (02	) 10000000	1-5%	
003 C044002C (03	) 01000000	6-10%	
004 C044002D (04	) 00100000	11-25%	
005 C044002E (05	) 00010000	26-50%	
006 C044002F (06	) 00001000	51-75%	
007 C044002G (07	) 00000100	76-90%	
008 C044002H (08	) 00000010	OVER 90%	
009 C044002M (M	) 00000001	MISSING	
CONDITIONING VARIABLE ID: SCHL0050			
DESCRIPTION: PERCENT STUDENTS RECEIVE REMEDIAL WRITING INSTRUCT			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044003N (01	) 00000000	NONE	
002 C044003B (02	) 10000000	1-5%	
003 C044003C (03	) 01000000	6-10%	
004 C044003D (04	) 00100000	11-25%	
005 C044003E (05	) 00010000	26-50%	
006 C044003F (06	) 00001000	51-75%	
007 C044003G (07	) 00000100	76-90%	
008 C044003H (08	) 00000010	OVER 90%	
009 C044003M (M	) 00000001	MISSING	
CONDITIONING VARIABLE ID: SCHL0051			
DESCRIPTION: PERCENT STUDENTS IN GIFTED AND TALENTED PROGRAM			
GRADES/ASSESSMENTS: N04, N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044004N (01	) 00000000	NONE	
002 C044004B (02	) 10000000	1-5%	
003 C044004C (03	) 01000000	6-10%	
004 C044004D (04	) 00100000	11-25%	
005 C044004E (05	) 00010000	26-50%	
006 C044004F (06	) 00001000	51-75%	
007 C044004G (07	) 00000100	76-90%	
008 C044004H (08	) 00000010	OVER 90%	
009 C044004M (M	) 00000001	MISSING	
CONDITIONING VARIABLE ID: BACK0067			
DESCRIPTION: HOW MUCH EDUCATION DO YOU EXPECT TO RECEIVE			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	B014201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B014201N (01	) 000000	WILL NOT FINISH HS	
002 B014201B (02	) 100000	WILL GRADUATE HS	
003 B014201C (03	) 010000	SOME ED AFTER HS	
004 B014201D (04	) 001000	GRADUATE COLLEGE	
005 B014201E (05	) 000100	GO TO GRAD SCHOOL	
006 B014201M (M, IDK	) 000001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID: SUBJ0023			
DESCRIPTION: HOW OFTEN PAPERS ASSIGED-ONE TO TWO PARAGRAPHS			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802701A (01	) 0000	ALMOST EVERY DAY	
002 W802701B (02	) 1000	ONCE/TWICE A WEEK	
003 W802701C (03	) 0100	ONCE/TWICE A MONTH	
004 W802701D (04	) 0010	NEVER OR HARDLY EVER	
005 W802701M (M	) 0001	MISSING	
CONDITIONING VARIABLE ID: SUBJ0024			
DESCRIPTION: HOW OFTEN PAPERS ASSIGNED-ONE TO TWO PAGES			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802702A (01	) 0000	ALMOST EVERY DAY	
002 W802702B (02	) 1000	ONCE/TWICE A WEEK	
003 W802702C (03	) 0100	ONCE/TWICE A MONTH	
004 W802702D (04	) 0010	NEVER OR HARDLY EVER	
005 W802702M (M	) 0001	MISSING	

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SUBJ0025			
DESCRIPTION: HOW OFTEN PAPERS ASSIGNED-THREE OR MORE PAGES			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802703A (01	) 0000		ALMOST EVERY DAY
002 W802703B (02	) 1000		ONCE/TWICE A WEEK
003 W802703C (03	) 0100		ONCE/TWICE A MONTH
004 W802703D (04	) 0010		NEVER OR HARDLY EVER
005 W802703M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0026			
DESCRIPTION: HOW OFTEN WRITING ASSIGNED-REPORT OR SUMMARY			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802801A (01	) 0000		ALMOST EVERY DAY
002 W802801B (02	) 1000		ONCE/TWICE A WEEK
003 W802801C (03	) 0100		ONCE/TWICE A MONTH
004 W802801D (04	) 0010		NEVER OR HARDLY EVER
005 W802801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0027			
DESCRIPTION: HOW OFTEN WRITING ASSIGNED-ESSAY/THEME TO ANALYZE			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802802A (01	) 0000		ALMOST EVERY DAY
002 W802802B (02	) 1000		ONCE/TWICE A WEEK
003 W802802C (03	) 0100		ONCE/TWICE A MONTH
004 W802802D (04	) 0010		NEVER OR HARDLY EVER
005 W802802M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0028			
DESCRIPTION: HOW OFTEN WRITING ASSIGNED-ESSAY/LETTER- PERSUADE			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802803A (01	) 0000		ALMOST EVERY DAY
002 W802803B (02	) 1000		ONCE/TWICE A WEEK
003 W802803C (03	) 0100		ONCE/TWICE A MONTH
004 W802803D (04	) 0010		NEVER OR HARDLY EVER
005 W802803M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0029			
DESCRIPTION: HOW OFTEN WRITING ASSIGNED-STORY/NARRATIVE			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802804A (01	) 0000		ALMOST EVERY DAY
002 W802804B (02	) 1000		ONCE/TWICE A WEEK
003 W802804C (03	) 0100		ONCE/TWICE A MONTH
004 W802804D (04	) 0010		NEVER OR HARDLY EVER
005 W802804M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0030			
DESCRIPTION: HOW OFTEN ASKED TO PLAN YOUR WRITING			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802901A (01	) 0000		ALMOST EVERY DAY
002 W802901B (02	) 1000		ONCE/TWICE A WEEK
003 W802901C (03	) 0100		ONCE/TWICE A MONTH
004 W802901D (04	) 0010		NEVER OR HARDLY EVER
005 W802901M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0031			
DESCRIPTION: HOW OFTEN ASKED TO MAKE FORMAL OUTLINE FIRST			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802902A (01	) 0000		ALMOST EVERY DAY
002 W802902B (02	) 1000		ONCE/TWICE A WEEK
003 W802902C (03	) 0100		ONCE/TWICE A MONTH
004 W802902D (04	) 0010		NEVER OR HARDLY EVER
005 W802902M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0032			
DESCRIPTION: HOW OFTEN ASKED TO DEFINE PURPOSE AND AUDIENCE			
GRADES/ASSESSMENTS: N08, S08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	W802903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802903A (01	) 0000		ALMOST EVERY DAY
002 W802903B (02	) 1000		ONCE/TWICE A WEEK
003 W802903C (03	) 0100		ONCE/TWICE A MONTH
004 W802903D (04	) 0010		NEVER OR HARDLY EVER
005 W802903M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0033		
DESCRIPTION:	HOW OFTEN ASKED TO USE SOURCES OTHER THAN TEXTBOOK		
GRADES/ASSESSMENTS:	N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	W802904	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 W802904A (01	) 0000		ALMOST EVERY DAY
002 W802904B (02	) 1000		ONCE/TWICE A WEEK
003 W802904C (03	) 0100		ONCE/TWICE A MONTH
004 W802904D (04	) 0010		NEVER OR HARDLY EVER
005 W802904M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0052		
DESCRIPTION:	8TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	C044401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044401Y (01	) 00		YES
002 C044401N (02	) 10		NO
003 C044401M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0053		
DESCRIPTION:	8TH GRADE ASSIGNED-HISTORY/SS BY ABILITY		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	C044402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044402Y (01	) 00		YES
002 C044402N (02	) 10		NO
003 C044402M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0054		
DESCRIPTION:	IS STUDENT DROPOUT A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043105	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043105A (01	) 0000		SERIOUS
002 C043105B (02	) 1000		MODERATE
003 C043105C (03	) 0100		MINOR
004 C043105N (04	) 0010		NOT A PROBLEM
005 C043105M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0055		
DESCRIPTION:	IS TEEN PREGNANCY A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N08, S08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043106	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043106A (01	) 0000		SERIOUS
002 C043106B (02	) 1000		MODERATE
003 C043106C (03	) 0100		MINOR
004 C043106N (04	) 0010		NOT A PROBLEM
005 C043106M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	BACK0068		
DESCRIPTION:	MAIN ACTIVITY YEAR FOLLOWING HIGH SCHOOL		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B005501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 B005501A (01	) 000000		WORK FULL-TIME
002 B005501B (02	) 100000		VOCA/TECH/BUSINESS
003 B005501C (03	) 010000		ATTEND 2 YR COLLEGE
004 B005501D (04	) 001000		ATTEND 4 YR COLLEGE
005 B005501E (05	) 000100		SERVE IN MILITARY
006 B005501F (06	) 000010		OTHER
007 B005501M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	BACK0069		
DESCRIPTION:	VOLUNTEER WORK IN YOUR COMMUNITY THIS YEAR		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B014301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 B014301Y (01	) 000		YES, WITH MY SCHOOL
002 B014301Y (02	) 100		YES, ON MY OWN
003 B014301N (03	) 010		NO
004 B014301M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	BACK0070		
DESCRIPTION:	HOW MANY HOURS/WEEK WORK JOB FOR PAY		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B014401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 B014401N (01	) 000000		NONE
002 B014401B (02	) 100000		1-5 HOURS
003 B014401C (03	) 010000		6-10 HOURS
004 B014401D (04	) 001000		11-15 HOURS
005 B014401E (05	) 000100		16-20 HOURS
006 B014401F (06	) 000010		21 OR MORE HOURS
007 B014401M (M	) 000001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0056			
DESCRIPTION: 12TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044301Y (01	) 00		YES
002 C044301N (02	) 10		NO
003 C044301M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0057			
DESCRIPTION: 12TH GR ASSIGNED- HISTORY/CIVICS/SS CLASS ABILITY			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044302Y (01	) 00		YES
002 C044302N (02	) 10		NO
003 C044302M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0058			
DESCRIPTION: PERCENT LAST YEAR'S TWELFTH-GRADE CLASS GRADUATED			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C044101A (01	) 00000		99-100%
002 C044101B (02	) 10000		95-98%
003 C044101C (03	) 01000		90-94%
004 C044101D (04	) 00100		75-89%
005 C044101E (05	) 00010		LESS THAN 75%
006 C044101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0059			
DESCRIPTION: PERCENT GRADUATING CLASS-ATTEND TWO-YEAR COLLEGE			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044201N (01	) 00000000		NONE
002 C044201B (02	) 10000000		1-5%
003 C044201C (03	) 01000000		6-10%
004 C044201D (04	) 00100000		11-25%
005 C044201E (05	) 00010000		26-50%
006 C044201F (06	) 00001000		51-75%
007 C044201G (07	) 00000100		76-90%
008 C044201H (08	) 00000010		OVER 100%
009 C044201M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0060			
DESCRIPTION: PERCENT GRADUATING CLASS-ATTEND FOUR-YEAR COLLEGE			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044202N (01	) 00000000		NONE
002 C044202B (02	) 10000000		1-5%
003 C044202C (03	) 01000000		6-10%
004 C044202D (04	) 00100000		11-25%
005 C044202E (05	) 00010000		26-50%
006 C044202F (06	) 00001000		51-75%
007 C044202G (07	) 00000100		76-90%
008 C044202H (08	) 00000010		OVER 100%
009 C044202M (M	) 00000001		MISSING
009 C044202M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: TCHR0001			
DESCRIPTION: DO YOU TEACH READING			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067001Y (01	) 0		YES
002 T067001M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0002			
DESCRIPTION: DO YOU TEACH WRITING			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067002Y (01	) 0		YES
002 T067002M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0003			
DESCRIPTION: DO YOU TEACH LANGUAGE ARTS			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067003Y (01	) 0		YES
002 T067003M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0004			
DESCRIPTION: DO YOU TEACH SOCIAL STUDIES			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067004Y (01	) 0		YES
002 T067004M (M	) 1		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0005		
DESCRIPTION:	YEARS TOTAL TAUGHT ELEMENTARY LEVEL		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067101A (01	) 00000		2 YEARS OR LESS
002 T067101B (02	) 10000		3-5 YEARS
003 T067101C (03	) 01000		6-10 YEARS
004 T067101D (04	) 00100		11-24 YEARS
005 T067101E (05	) 00010		25 YEARS OR MORE
006 T067101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0006		
DESCRIPTION:	YEARS TOTAL TAUGHT READING		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067201A (01	) 00000		2 YEARS OR LESS
002 T067201B (02	) 10000		3-5 YEARS
003 T067201C (03	) 01000		6-10 YEARS
004 T067201D (04	) 00100		11-24 YEARS
005 T067201E (05	) 00010		25 YEARS OR MORE
006 T067201M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0007		
DESCRIPTION:	YEARS TOTAL TAUGHT WRITING		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067202A (01	) 00000		2 YEARS OR LESS
002 T067202B (02	) 10000		3-5 YEARS
003 T067202C (03	) 01000		6-10 YEARS
004 T067202D (04	) 00100		11-24 YEARS
005 T067202E (05	) 00010		25 YEARS OR MORE
006 T067202M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0008		
DESCRIPTION:	YEARS TOTAL TAUGHT LANGUAGE ARTS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067203A (01	) 00000		2 YEARS OR LESS
002 T067203B (02	) 10000		3-5 YEARS
003 T067203C (03	) 01000		6-10 YEARS
004 T067203D (04	) 00100		11-24 YEARS
005 T067203E (05	) 00010		25 YEARS OR MORE
006 T067203M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0009		
DESCRIPTION:	YEARS TOTAL TAUGHT HISTORY		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067204	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067204A (01	) 00000		2 YEARS OR LESS
002 T067204B (02	) 10000		3-5 YEARS
003 T067204C (03	) 01000		6-10 YEARS
004 T067204D (04	) 00100		11-24 YEARS
005 T067204E (05	) 00010		25 YEARS OR MORE
006 T067204M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0010		
DESCRIPTION:	YEARS TOTAL TAUGHT SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067205	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067205A (01	) 00000		2 YEARS OR LESS
002 T067205B (02	) 10000		3-5 YEARS
003 T067205C (03	) 01000		6-10 YEARS
004 T067205D (04	) 00100		11-24 YEARS
005 T067205E (05	) 00010		25 YEARS OR MORE
006 T067205M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0011		
DESCRIPTION:	YEARS TOTAL TAUGHT CIVICS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067206	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067206A (01	) 00000		2 YEARS OR LESS
002 T067206B (02	) 10000		3-5 YEARS
003 T067206C (03	) 01000		6-10 YEARS
004 T067206D (04	) 00100		11-24 YEARS
005 T067206E (05	) 00010		25 YEARS OR MORE
006 T067206M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0012		
DESCRIPTION:	MAIN ASSIGNMENT FIELD		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T067301A (01	) 0000		REGULAR CLASSROOM
002 T067301B (02	) 1000		SPECIAL CLASSROOM
003 T067301C (03	) 0100		ESL/BILINGUAL ED
004 T067301D (04	) 0010		OTHER
005 T067301M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0013			
DESCRIPTION: TEACHING CERTIF IN THIS STATE IN MAIN FIELD			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T056201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T056201A (01	) 000000		ADVANCED PROFESSIONL
002 T056201B (02	) 100000		REGULAR/STANDARD ST
003 T056201C (03	) 010000		PROBATIONARY STATE
004 T056201D (04	) 001000		TEMPORARY/PROVISIONL
005 T056201E (05	) 000100		OTHER THAN STATE CRT
006 T056201F (06	) 000010		NOT HAVE CERT MAIN
007 T056201M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0014			
DESCRIPTION: HIGHEST ACADEMIC DEGREE YOU HOLD			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T056301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 T056301A (01	) 0000000		HIGH SCHOOL DIPLOMA
002 T056301B (02	) 1000000		ASSOCIATES/VOCATIONL
003 T056301C (03	) 0100000		BACHELOR'S DEGREE
004 T056301D (04	) 0010000		MASTER'S DEGREE
005 T056301E (05	) 0001000		EDUCATION SPECIALIST
006 T056301F (06	) 0000100		DOCTORATE
007 T056301G (07	) 0000010		PROFESSIONAL DEGREE
008 T056301M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID: TCHR0015			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-ELEMENTARY EDUCATION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067501A (01	) 000		MAJOR
002 T067501B (02	) 100		MINOR
003 T067501C (03	) 010		NOT IN THIS SUBJECT
004 T067501M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0016			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-SECONDARY EDUCATION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067502A (01	) 000		MAJOR
002 T067502B (02	) 100		MINOR
003 T067502C (03	) 010		NOT IN THIS SUBJECT
004 T067502M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0017			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-SPECIAL EDUCATION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067503A (01	) 000		MAJOR
002 T067503B (02	) 100		MINOR
003 T067503C (03	) 010		NOT IN THIS SUBJECT
004 T067503M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0018			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067504	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067504A (01	) 000		MAJOR
002 T067504B (02	) 100		MINOR
003 T067504C (03	) 010		NOT IN THIS SUBJECT
004 T067504M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0019			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067505	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067505A (01	) 000		MAJOR
002 T067505B (02	) 100		MINOR
003 T067505C (03	) 010		NOT IN THIS SUBJECT
004 T067505M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0020			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-CURRICULUM & SUPERVISION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067506	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067506A (01	) 000		MAJOR
002 T067506B (02	) 100		MINOR
003 T067506C (03	) 010		NOT IN THIS SUBJECT
004 T067506M (M	) 001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0021			
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-COUNSELING			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067507	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067507A (01	) 000		MAJOR	
002 T067507B (02	) 100		MINOR	
003 T067507C (03	) 010		NOT IN THIS SUBJECT	
004 T067507M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0022			
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-ENGLISH			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067508	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067508A (01	) 000		MAJOR	
002 T067508B (02	) 100		MINOR	
003 T067508C (03	) 010		NOT IN THIS SUBJECT	
004 T067508M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0023			
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067509	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067509A (01	) 000		MAJOR	
002 T067509B (02	) 100		MINOR	
003 T067509C (03	) 010		NOT IN THIS SUBJECT	
004 T067509M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0024			
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-HISTORY			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067510	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067510A (01	) 000		MAJOR	
002 T067510B (02	) 100		MINOR	
003 T067510C (03	) 010		NOT IN THIS SUBJECT	
004 T067510M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0025			
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-POLITICAL SCIENCE			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067511	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067511A (01	) 000		MAJOR	
002 T067511B (02	) 100		MINOR	
003 T067511C (03	) 010		NOT IN THIS SUBJECT	
004 T067511M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0026			
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-OTHER			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067512	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067512A (01	) 000		MAJOR	
002 T067512B (02	) 100		MINOR	
003 T067512C (03	) 010		NOT IN THIS SUBJECT	
004 T067512M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0027			
DESCRIPTION:	GRAD MAJOR/MINOR-ELEMENTARY EDUCATION			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067601A (01	) 000		MAJOR	
002 T067601B (02	) 100		MINOR	
003 T067601C (03	) 010		NOT IN THIS SUBJECT	
004 T067601M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0028			
DESCRIPTION:	GRAD MAJOR/MINOR-SECONDARY EDUCATION			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067602A (01	) 000		MAJOR	
002 T067602B (02	) 100		MINOR	
003 T067602C (03	) 010		NOT IN THIS SUBJECT	
004 T067602M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0029			
DESCRIPTION:	GRAD MAJOR/MINOR-SPECIAL EDUCATION			
GRADES/ASSESSMENTS:	N04, N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T067603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T067603A (01	) 000		MAJOR	
002 T067603B (02	) 100		MINOR	
003 T067603C (03	) 010		NOT IN THIS SUBJECT	
004 T067603M (M	) 001		MISSING	

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0030			
DESCRIPTION: GRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067604A (01	) 000		MAJOR
002 T067604B (02	) 100		MINOR
003 T067604C (03	) 010		NOT IN THIS SUBJECT
004 T067604M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0031			
DESCRIPTION: GRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067605	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067605A (01	) 000		MAJOR
002 T067605B (02	) 100		MINOR
003 T067605C (03	) 010		NOT IN THIS SUBJECT
004 T067605M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0032			
DESCRIPTION: GRAD MAJOR/MINOR-CURRICULUM AND INSTRUCTION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067606	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067606A (01	) 000		MAJOR
002 T067606B (02	) 100		MINOR
003 T067606C (03	) 010		NOT IN THIS SUBJECT
004 T067606M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0033			
DESCRIPTION: GRAD MAJOR/MINOR-COUNSELING			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067607	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067607A (01	) 000		MAJOR
002 T067607B (02	) 100		MINOR
003 T067607C (03	) 010		NOT IN THIS SUBJECT
004 T067607M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0034			
DESCRIPTION: GRAD MAJOR/MINOR-ENGLISH			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067608	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067608A (01	) 000		MAJOR
002 T067608B (02	) 100		MINOR
003 T067608C (03	) 010		NOT IN THIS SUBJECT
004 T067608M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0035			
DESCRIPTION: GRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067609	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067609A (01	) 000		MAJOR
002 T067609B (02	) 100		MINOR
003 T067609C (03	) 010		NOT IN THIS SUBJECT
004 T067609M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0036			
DESCRIPTION: GRAD MAJOR/MINOR-HISTORY			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067610	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067610A (01	) 000		MAJOR
002 T067610B (02	) 100		MINOR
003 T067610C (03	) 010		NOT IN THIS SUBJECT
004 T067610M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0037			
DESCRIPTION: GRAD MAJOR/MINOR-POLITICAL SCIENCE			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067611	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067611A (01	) 000		MAJOR
002 T067611B (02	) 100		MINOR
003 T067611C (03	) 010		NOT IN THIS SUBJECT
004 T067611M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0038			
DESCRIPTION: GRAD MAJOR/MINOR-OTHER			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067612	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067612A (01	) 000		MAJOR
002 T067612B (02	) 100		MINOR
003 T067612C (03	) 010		NOT IN THIS SUBJECT
004 T067612M (M	) 001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0039		
DESCRIPTION:	LAST 12 MOS, PROF DEV-READING AND WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067701A (01	) 00000		NONE
002 T067701B (02	) 10000		LESS THAN 6 HOURS
003 T067701C (03	) 01000		6 - 15 HOURS
004 T067701D (04	) 00100		16 - 35 HOURS
005 T067701E (05	) 00010		MORE THAN 35 HOURS
006 T067701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0040		
DESCRIPTION:	LAST 12 MOS, PROF DEV-SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067702A (01	) 00000		NONE
002 T067702B (02	) 10000		LESS THAN 6 HOURS
003 T067702C (03	) 01000		6 - 15 HOURS
004 T067702D (04	) 00100		16 - 35 HOURS
005 T067702E (05	) 00010		MORE THAN 35 HOURS
006 T067702M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0041		
DESCRIPTION:	PREPARED IN THE USE OF TELECOMMUNICATIONS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067801A (01	) 000		WELL PREPARED
002 T067801B (02	) 100		MODERATELY PREPARED
003 T067801C (03	) 010		NOT WELL PREPARED
004 T067801M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0042		
DESCRIPTION:	PREPARED IN THE USE OF COMPUTERS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067802A (01	) 000		WELL PREPARED
002 T067802B (02	) 100		MODERATELY PREPARED
003 T067802C (03	) 010		NOT WELL PREPARED
004 T067802M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0043		
DESCRIPTION:	PREPARED IN COOPERATIVE GROUP INSTRUCTION		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067803A (01	) 000		WELL PREPARED
002 T067803B (02	) 100		MODERATELY PREPARED
003 T067803C (03	) 010		NOT WELL PREPARED
004 T067803M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0044		
DESCRIPTION:	PREPARED IN TEACHING STUDENTS-DIFFERENT CULTURES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067804A (01	) 000		WELL PREPARED
002 T067804B (02	) 100		MODERATELY PREPARED
003 T067804C (03	) 010		NOT WELL PREPARED
004 T067804M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0045		
DESCRIPTION:	PREPARED IN TEACHING STUDENTS WHO ARE LEP		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067805A (01	) 000		WELL PREPARED
002 T067805B (02	) 100		MODERATELY PREPARED
003 T067805C (03	) 010		NOT WELL PREPARED
004 T067805M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0046		
DESCRIPTION:	PREPARED IN TEACHING STUDENTS WITH DISABILITIES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067806A (01	) 000		WELL PREPARED
002 T067806B (02	) 100		MODERATELY PREPARED
003 T067806C (03	) 010		NOT WELL PREPARED
004 T067806M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0047		
DESCRIPTION:	PREPARED IN CLASSROOM MANAGEMENT AND ORGANIZATION		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067807A (01	) 000		WELL PREPARED
002 T067807B (02	) 100		MODERATELY PREPARED
003 T067807C (03	) 010		NOT WELL PREPARED
004 T067807M (M	) 001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0048		
DESCRIPTION:	AVAILABILITY OF RESOURCES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T041201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T041201A (01	) 0000		GET ALL RESOURCES
002 T041201B (02	) 1000		GET MOST RESOURCES
003 T041201C (03	) 0100		GET SOME RESOURCES
004 T041201D (04	) 0010		DON'T GET RESOURCES
005 T041201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0049		
DESCRIPTION:	HOW WELL PREPARED TO TEACH READING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067901A (01	) 000		WELL PREPARED
002 T067901B (02	) 100		MODERATELY PREPARED
003 T067901C (03	) 010		NOT WELL PREPARED
004 T067901M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0050		
DESCRIPTION:	HOW WELL PREPARED TO TEACH WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067902A (01	) 000		WELL PREPARED
002 T067902B (02	) 100		MODERATELY PREPARED
003 T067902C (03	) 010		NOT WELL PREPARED
004 T067902M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0051		
DESCRIPTION:	PREPARED IN LIT-BASED READING INSTRUCTION		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068001A (01	) 000		WELL PREPARED
002 T068001B (02	) 100		MODERATELY PREPARED
003 T068001C (03	) 010		NOT WELL PREPARED
004 T068001M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0052		
DESCRIPTION:	PREPARED IN CONTENT AREA READING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068002A (01	) 000		WELL PREPARED
002 T068002B (02	) 100		MODERATELY PREPARED
003 T068002C (03	) 010		NOT WELL PREPARED
004 T068002M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0053		
DESCRIPTION:	PREPARED IN COMBINING RDG AND WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068003A (01	) 000		WELL PREPARED
002 T068003B (02	) 100		MODERATELY PREPARED
003 T068003C (03	) 010		NOT WELL PREPARED
004 T068003M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0054		
DESCRIPTION:	PREPARED IN WHOLE LANGUAGE APPROACH TO TEACH RDG		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068004A (01	) 000		WELL PREPARED
002 T068004B (02	) 100		MODERATELY PREPARED
003 T068004C (03	) 010		NOT WELL PREPARED
004 T068004M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0055		
DESCRIPTION:	PREPARED IN PHONICS IN TEACHING READING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068005	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068005A (01	) 000		WELL PREPARED
002 T068005B (02	) 100		MODERATELY PREPARED
003 T068005C (03	) 010		NOT WELL PREPARED
004 T068005M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0056		
DESCRIPTION:	PREPARED IN TEACHING MULTICULTURAL LITERATURE		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068006	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068006A (01	) 000		WELL PREPARED
002 T068006B (02	) 100		MODERATELY PREPARED
003 T068006C (03	) 010		NOT WELL PREPARED
004 T068006M (M	) 001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0057		
DESCRIPTION:	PREPARED IN COMPUTER SOFTWARE FOR TEACHING RDG		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068007	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068007A (01	) 000		WELL PREPARED
002 T068007B (02	) 100		MODERATELY PREPARED
003 T068007C (03	) 010		NOT WELL PREPARED
004 T068007M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0058		
DESCRIPTION:	PREPARED IN WRITING ACROSS THE CURRICULUM		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068008	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068008A (01	) 000		WELL PREPARED
002 T068008B (02	) 100		MODERATELY PREPARED
003 T068008C (03	) 010		NOT WELL PREPARED
004 T068008M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0059		
DESCRIPTION:	PREPARED IN USING COMPUTER SOFTWARE TO TEACH WRTG		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068009	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068009A (01	) 000		WELL PREPARED
002 T068009B (02	) 100		MODERATELY PREPARED
003 T068009C (03	) 010		NOT WELL PREPARED
004 T068009M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0060		
DESCRIPTION:	PREPARED IN TEACHING SPELLING, GRAMMAR, MECHANICS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068010	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T068010A (01	) 000		WELL PREPARED
002 T068010B (02	) 100		MODERATELY PREPARED
003 T068010C (03	) 010		NOT WELL PREPARED
004 T068010M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0061		
DESCRIPTION:	AVERAGE READING CLASS SIZE		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T068101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068101A (01	) 00000		1-20 STUDENTS
002 T068101B (02	) 10000		21-25 STUDENTS
003 T068101C (03	) 01000		26-30 STUDENTS
004 T068101D (04	) 00100		31-35 STUDENTS
005 T068101E (05	) 00010		36 OR MORE STUDENTS
006 T068101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0062		
DESCRIPTION:	CLASS ASSIGNMENT BY ABILITY		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T046101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 T046101Y (01	) 00		YES
002 T046101N (02	) 10		NO
003 T046101M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	TCHR0063		
DESCRIPTION:	ABILITY LEVEL OF STUDENTS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T046201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T046201A (01	) 0000		MOSTLY HIGH ABILITY
002 T046201B (02	) 1000		MOSTLY AVERAGE ABILITY
003 T046201C (03	) 0100		MOSTLY LOW ABILITY
004 T046201D (04	) 0010		MIXED ABILITY LEVELS
005 T046201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0064		
DESCRIPTION:	HOW MUCH CLASS TIME PER DAY-READING INSTRUCTION		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068201A (01	) 00000		LESS THAN 30 MINUTES
002 T068201B (02	) 10000		30-44 MINUTES
003 T068201C (03	) 01000		45-59 MINUTES
004 T068201D (04	) 00100		60-90 MINUTES
005 T068201E (05	) 00010		MORE THAN 90 MINUTES
006 T068201M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0065		
DESCRIPTION:	BASIS FOR CREATING READING INSTRUCTIONAL GROUPS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068301A (01	) 00000		ABILITY
002 T068301B (02	) 10000		INTEREST
003 T068301C (03	) 01000		DIVERSITY
004 T068301D (04	) 00100		OTHER
005 T068301E (05	) 00010		NOT CREATED
006 T068301M (M	) 00001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0066			
DESCRIPTION: CLASS DIVIDED INTO HOW MANY INSTRUCTIONAL GROUPS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 T068401A (01	) 0000000		WHOLE CLASS
002 T068401B (02	) 1000000		WHOLE W/FLEX GROUP
003 T068401C (03	) 0100000		2 GROUPS
004 T068401D (04	) 0010000		3 GROUPS
005 T068401E (05	) 0001000		4 GROUPS
006 T068401F (06	) 0000100		5 OR MORE GROUPS
007 T068401G (07	) 0000010		INDIVIDUALIZED
008 T068401M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID: TCHR0067			
DESCRIPTION: WRITING ABILITY LEVEL OF CLASS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068601A (01	) 0000		PRIMARILY HIGH
002 T068601B (02	) 1000		PRIMARILY AVERAGE
003 T068601C (03	) 0100		PRIMARILY LOW
004 T068601D (04	) 0010		WIDELY MIXED
005 T068601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0068			
DESCRIPTION: EACH WEEK, TIME SPENT INSTRUCTING/HELPING-WRITING			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T068701A (01	) 00000		LESS THAN 30 MINUTES
002 T068701B (02	) 10000		30-44 MINUTES
003 T068701C (03	) 01000		45-59 MINUTES
004 T068701D (04	) 00100		60-90 MINUTES
005 T068701E (05	) 00010		MORE THAN 90 MINUTES
006 T068701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0069			
DESCRIPTION: HOW OFTEN USE CHILDREN'S NEWSPAPERS/MAGAZINES			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068801A (01	) 0000		ALMOST EVERY DAY
002 T068801B (02	) 1000		ONCE/TWICE A WEEK
003 T068801C (03	) 0100		ONCE/TWICE A MONTH
004 T068801D (04	) 0010		NEVER OR HARDLY EVER
005 T068801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0070			
DESCRIPTION: HOW OFTEN USE READING KITS TO TEACH READING			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068802A (01	) 0000		ALMOST EVERY DAY
002 T068802B (02	) 1000		ONCE/TWICE A WEEK
003 T068802C (03	) 0100		ONCE/TWICE A MONTH
004 T068802D (04	) 0010		NEVER OR HARDLY EVER
005 T068802M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0071			
DESCRIPTION: HOW OFTEN USE COMPUTER SOFTWARE FOR READING INSTR			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068803A (01	) 0000		ALMOST EVERY DAY
002 T068803B (02	) 1000		ONCE/TWICE A WEEK
003 T068803C (03	) 0100		ONCE/TWICE A MONTH
004 T068803D (04	) 0010		NEVER OR HARDLY EVER
005 T068803M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0072			
DESCRIPTION: HOW OFTEN USE BOOKS (NOVELS, POETRY, NONFICTION)			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068804A (01	) 0000		ALMOST EVERY DAY
002 T068804B (02	) 1000		ONCE/TWICE A WEEK
003 T068804C (03	) 0100		ONCE/TWICE A MONTH
004 T068804D (04	) 0010		NEVER OR HARDLY EVER
005 T068804M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0073			
DESCRIPTION: HOW OFTEN USE MATERIALS FROM OTHER SUBJECTS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068805A (01	) 0000		ALMOST EVERY DAY
002 T068805B (02	) 1000		ONCE/TWICE A WEEK
003 T068805C (03	) 0100		ONCE/TWICE A MONTH
004 T068805D (04	) 0010		NEVER OR HARDLY EVER
005 T068805M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0074		
DESCRIPTION:	WHAT TYPE OF MATERIALS FORM CORE READING PROGRAM		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T068901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T068901A (01	) 0000		PRIMARILY BASAL
002 T068901B (02	) 1000		PRIMARILY TRADE BOOK
003 T068901C (03	) 0100		BOTH BASAL AND TRADE
004 T068901D (04	) 0010		OTHER
005 T068901M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0075		
DESCRIPTION:	AVAILABILITY OF COMPUTERS FOR USE IN CLASS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T069001A (01	) 00000		NOT AVAILABLE
002 T069001B (02	) 10000		LIMITED ACCESS
003 T069001C (03	) 01000		LAB OR LIBRARY
004 T069001D (04	) 00100		ONE IN CLASSROOM
005 T069001E (05	) 00010		SEVERAL IN CLASSROOM
006 T069001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0076		
DESCRIPTION:	PROPORTION TIME SPENT ON RDG FOR LIT EXPERIENCE		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069101A (01	) 0000		ALMOST ALL TIME
002 T069101B (02	) 1000		TWO-THIRDS OF TIME
003 T069101C (03	) 0100		AT LEAST ONE-THIRD
004 T069101D (04	) 0010		LITTLE OR NO TIME
005 T069101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0077		
DESCRIPTION:	PROPORTION TIME SPENT ON RDG TO GAIN INFORMATION		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069102A (01	) 0000		ALMOST ALL TIME
002 T069102B (02	) 1000		TWO-THIRDS OF TIME
003 T069102C (03	) 0100		AT LEAST ONE-THIRD
004 T069102D (04	) 0010		LITTLE OR NO TIME
005 T069102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0078		
DESCRIPTION:	PROPORTION TIME SPENT ON RDG TO PERFORM A TASK		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069103A (01	) 0000		ALMOST ALL TIME
002 T069103B (02	) 1000		TWO-THIRDS OF TIME
003 T069103C (03	) 0100		AT LEAST ONE-THIRD
004 T069103D (04	) 0010		LITTLE OR NO TIME
005 T069103M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0079		
DESCRIPTION:	PROPORTION TIME SPENT ON NARRATIVE WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069201A (01	) 0000		ALMOST ALL TIME
002 T069201B (02	) 1000		TWO-THIRDS OF TIME
003 T069201C (03	) 0100		AT LEAST ONE-THIRD
004 T069201D (04	) 0010		LITTLE OR NO TIME
005 T069201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0080		
DESCRIPTION:	PROPORTION TIME SPENT ON INFORMATIVE WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069202A (01	) 0000		ALMOST ALL TIME
002 T069202B (02	) 1000		TWO-THIRDS OF TIME
003 T069202C (03	) 0100		AT LEAST ONE-THIRD
004 T069202D (04	) 0010		LITTLE OR NO TIME
005 T069202M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0081		
DESCRIPTION:	PROPORTION TIME SPENT ON PERSUASIVE WRITING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069203A (01	) 0000		ALMOST ALL TIME
002 T069203B (02	) 1000		TWO-THIRDS OF TIME
003 T069203C (03	) 0100		AT LEAST ONE-THIRD
004 T069203D (04	) 0010		LITTLE OR NO TIME
005 T069203M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0082			
DESCRIPTION: DO YOU USE GRAMMAR OR SKILL-BASED INSTRUCTION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069301A (01	) 000		YES, CENTRAL PART
002 T069301B (02	) 100		YES, SUPPLEMENT PART
003 T069301N (03	) 010		NO
004 T069301M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0083			
DESCRIPTION: DO YOU USE WRITING PROCESS INSTRUCTION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069302A (01	) 000		YES, CENTRAL PART
002 T069302B (02	) 100		YES, SUPPLEMENT PART
003 T069302N (03	) 010		NO
004 T069302M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0084			
DESCRIPTION: DO YOU INTEGRATE READING AND WRITING INSTRUCTION			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069303	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069303A (01	) 000		YES, CENTRAL PART
002 T069303B (02	) 100		YES, SUPPLEMENT PART
003 T069303N (03	) 010		NO
004 T069303M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0085			
DESCRIPTION: DO YOU USE WRITING ABOUT LITERATURE			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069304	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069304A (01	) 000		YES, CENTRAL PART
002 T069304B (02	) 100		YES, SUPPLEMENT PART
003 T069304N (03	) 010		NO
004 T069304M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0086			
DESCRIPTION: DO YOU USE WRITING ACROSS OTHER SUBJECT AREAS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069305	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069305A (01	) 000		YES, CENTRAL PART
002 T069305B (02	) 100		YES, SUPPLEMENT PART
003 T069305N (03	) 010		NO
004 T069305M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0087			
DESCRIPTION: HOW OFTEN STUDENTS DO SPELLING, PUNCTUATION, GRAMM			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069401A (01	) 0000		ALMOST EVERY DAY
002 T069401B (02	) 1000		ONCE/TWICE A WEEK
003 T069401C (03	) 0100		ONCE/TWICE A MONTH
004 T069401D (04	) 0010		NEVER OR HARDLY EVER
005 T069401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0088			
DESCRIPTION: HOW OFTEN STUDENTS WORK ON WRITING PROCESS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069402A (01	) 0000		ALMOST EVERY DAY
002 T069402B (02	) 1000		ONCE/TWICE A WEEK
003 T069402C (03	) 0100		ONCE/TWICE A MONTH
004 T069402D (04	) 0010		NEVER OR HARDLY EVER
005 T069402M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0089			
DESCRIPTION: HOW OFTEN STUDENTS WRITE IN A LOG/JOURNAL			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069403	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069403A (01	) 0000		ALMOST EVERY DAY
002 T069403B (02	) 1000		ONCE/TWICE A WEEK
003 T069403C (03	) 0100		ONCE/TWICE A MONTH
004 T069403D (04	) 0010		NEVER OR HARDLY EVER
005 T069403M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0090			
DESCRIPTION: HOW OFTEN PARENTS SIGN/REVIEW STUDENTS' HOMEWORK			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069404A (01	) 0000		ALMOST EVERY DAY
002 T069404B (02	) 1000		ONCE/TWICE A WEEK
003 T069404C (03	) 0100		ONCE/TWICE A MONTH
004 T069404D (04	) 0010		NEVER OR HARDLY EVER
005 T069404M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0091		
DESCRIPTION:	HOW OFTEN ASSIGN HOMEWORK TO DO WITH PARENTS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069405	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069405A (01	) 0000		ALMOST EVERY DAY
002 T069405B (02	) 1000		ONCE/TWICE A WEEK
003 T069405C (03	) 0100		ONCE/TWICE A MONTH
004 T069405D (04	) 0010		NEVER OR HARDLY EVER
005 T069405M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0092		
DESCRIPTION:	EXPECTED TIME SPENT ON WRITING ASSIGNMENTS/WEEK		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T069501A (01	) 00000		NONE
002 T069501B (02	) 10000		LESS THAN 1 HOUR
003 T069501C (03	) 01000		1 HOUR
004 T069501D (04	) 00100		2 HOURS
005 T069501E (05	) 00010		3 HOURS OR MORE
006 T069501M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0093		
DESCRIPTION:	THIS YEAR, PROJECTS TO DO/SHARE WITH PARENTS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069601A (01	) 0000		NEVER
002 T069601B (02	) 1000		ONCE
003 T069601C (03	) 0100		TWICE
004 T069601D (04	) 0010		THREE OR MORE TIMES
005 T069601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0094		
DESCRIPTION:	HOW OFTEN ASK STUDENTS TO READ ALOUD		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069701A (01	) 0000		ALMOST EVERY DAY
002 T069701B (02	) 1000		ONCE/TWICE A WEEK
003 T069701C (03	) 0100		ONCE/TWICE A MONTH
004 T069701D (04	) 0010		NEVER OR HARDLY EVER
005 T069701M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0095		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-DISCUSS WHAT WAS READ		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069702A (01	) 0000		ALMOST EVERY DAY
002 T069702B (02	) 1000		ONCE/TWICE A WEEK
003 T069702C (03	) 0100		ONCE/TWICE A MONTH
004 T069702D (04	) 0010		NEVER OR HARDLY EVER
005 T069702M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0096		
DESCRIPTION:	HOW OFTEN ASK STUDENTS- WRITE ABOUT WHAT WAS READ		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069703A (01	) 0000		ALMOST EVERY DAY
002 T069703B (02	) 1000		ONCE/TWICE A WEEK
003 T069703C (03	) 0100		ONCE/TWICE A MONTH
004 T069703D (04	) 0010		NEVER OR HARDLY EVER
005 T069703M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0097		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-WRITE IN WORKSHEET/BOOK		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069704	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069704A (01	) 0000		ALMOST EVERY DAY
002 T069704B (02	) 1000		ONCE/TWICE A WEEK
003 T069704C (03	) 0100		ONCE/TWICE A MONTH
004 T069704D (04	) 0010		NEVER OR HARDLY EVER
005 T069704M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0098		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-READ SILENTLY		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069705	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069705A (01	) 0000		ALMOST EVERY DAY
002 T069705B (02	) 1000		ONCE/TWICE A WEEK
003 T069705C (03	) 0100		ONCE/TWICE A MONTH
004 T069705D (04	) 0010		NEVER OR HARDLY EVER
005 T069705M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0099			
DESCRIPTION: HOW OFTEN GIVE STUDENTS TIME TO READ BOOKS CHOSEN			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069706	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069706A (01	) 0000		ALMOST EVERY DAY
002 T069706B (02	) 1000		ONCE/TWICE A WEEK
003 T069706C (03	) 0100		ONCE/TWICE A MONTH
004 T069706D (04	) 0010		NEVER OR HARDLY EVER
005 T069706M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0100			
DESCRIPTION: HOW OFTEN ASK STUDENTS-GROUP ACTIVITY/PROJECT			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069707	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069707A (01	) 0000		ALMOST EVERY DAY
002 T069707B (02	) 1000		ONCE/TWICE A WEEK
003 T069707C (03	) 0100		ONCE/TWICE A MONTH
004 T069707D (04	) 0010		NEVER OR HARDLY EVER
005 T069707M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0101			
DESCRIPTION: HOW OFTEN ASK STUDENTS-DISCUSS INTERPRETATIONS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069708	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069708A (01	) 0000		ALMOST EVERY DAY
002 T069708B (02	) 1000		ONCE/TWICE A WEEK
003 T069708C (03	) 0100		ONCE/TWICE A MONTH
004 T069708D (04	) 0010		NEVER OR HARDLY EVER
005 T069708M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0102			
DESCRIPTION: HOW OFTEN ASK STUDENTS-EXPLAIN/SUPPORT WHAT READ			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069709	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069709A (01	) 0000		ALMOST EVERY DAY
002 T069709B (02	) 1000		ONCE/TWICE A WEEK
003 T069709C (03	) 0100		ONCE/TWICE A MONTH
004 T069709D (04	) 0010		NEVER OR HARDLY EVER
005 T069709M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0103			
DESCRIPTION: HOW OFTEN GIVE READING QUIZZES OR TESTS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069710	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069710A (01	) 0000		ALMOST EVERY DAY
002 T069710B (02	) 1000		ONCE/TWICE A WEEK
003 T069710C (03	) 0100		ONCE/TWICE A MONTH
004 T069710D (04	) 0010		NEVER OR HARDLY EVER
005 T069710M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0104			
DESCRIPTION: HOW OFTEN WATCH MOVIES, VIDEOS, FILMSTRIPS, TV, CD			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069711	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069711A (01	) 0000		ALMOST EVERY DAY
002 T069711B (02	) 1000		ONCE/TWICE A WEEK
003 T069711C (03	) 0100		ONCE/TWICE A MONTH
004 T069711D (04	) 0010		NEVER OR HARDLY EVER
005 T069711M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0105			
DESCRIPTION: HOW OFTEN HELP STUDENTS UNDERSTAND NEW WORDS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069712	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069712A (01	) 0000		ALMOST EVERY DAY
002 T069712B (02	) 1000		ONCE/TWICE A WEEK
003 T069712C (03	) 0100		ONCE/TWICE A MONTH
004 T069712D (04	) 0010		NEVER OR HARDLY EVER
005 T069712M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0106			
DESCRIPTION: HOW OFTEN ASK STUDENTS-ANSWER QUESTIONS IN WRITING			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T069713	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069713A (01	) 0000		ALMOST EVERY DAY
002 T069713B (02	) 1000		ONCE/TWICE A WEEK
003 T069713C (03	) 0100		ONCE/TWICE A MONTH
004 T069713D (04	) 0010		NEVER OR HARDLY EVER
005 T069713M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0107		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-PREDICT OUTCOME OF READING		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069714	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069714A (01	) 0000		ALMOST EVERY DAY
002 T069714B (02	) 1000		ONCE/TWICE A WEEK
003 T069714C (03	) 0100		ONCE/TWICE A MONTH
004 T069714D (04	) 0010		NEVER OR HARDLY EVER
005 T069714M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0108		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-MAKE GENERALIZATIONS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069715	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069715A (01	) 0000		ALMOST EVERY DAY
002 T069715B (02	) 1000		ONCE/TWICE A WEEK
003 T069715C (03	) 0100		ONCE/TWICE A MONTH
004 T069715D (04	) 0010		NEVER OR HARDLY EVER
005 T069715M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0109		
DESCRIPTION:	HOW OFTEN ASK STUDENTS-DESCRIBE STYLE/STRUCTURE		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069716	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069716A (01	) 0000		ALMOST EVERY DAY
002 T069716B (02	) 1000		ONCE/TWICE A WEEK
003 T069716C (03	) 0100		ONCE/TWICE A MONTH
004 T069716D (04	) 0010		NEVER OR HARDLY EVER
005 T069716M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0110		
DESCRIPTION:	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071801A (01	) 0000		ALMOST EVERY DAY
002 T071801B (02	) 1000		ONCE/TWICE A WEEK
003 T071801C (03	) 0100		ONCE/TWICE A MONTH
004 T071801D (04	) 0010		NEVER OR HARDLY EVER
005 T071801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0111		
DESCRIPTION:	HOW OFTEN STUDENTS PLAN THEIR WRITING		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071802A (01	) 0000		ALMOST EVERY DAY
002 T071802B (02	) 1000		ONCE/TWICE A WEEK
003 T071802C (03	) 0100		ONCE/TWICE A MONTH
004 T071802D (04	) 0010		NEVER OR HARDLY EVER
005 T071802M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0112		
DESCRIPTION:	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071803A (01	) 0000		ALMOST EVERY DAY
002 T071803B (02	) 1000		ONCE/TWICE A WEEK
003 T071803C (03	) 0100		ONCE/TWICE A MONTH
004 T071803D (04	) 0010		NEVER OR HARDLY EVER
005 T071803M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0113		
DESCRIPTION:	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071804A (01	) 0000		ALMOST EVERY DAY
002 T071804B (02	) 1000		ONCE/TWICE A WEEK
003 T071804C (03	) 0100		ONCE/TWICE A MONTH
004 T071804D (04	) 0010		NEVER OR HARDLY EVER
005 T071804M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0114		
DESCRIPTION:	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071805A (01	) 0000		ALMOST EVERY DAY
002 T071805B (02	) 1000		ONCE/TWICE A WEEK
003 T071805C (03	) 0100		ONCE/TWICE A MONTH
004 T071805D (04	) 0010		NEVER OR HARDLY EVER
005 T071805M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0115			
DESCRIPTION: HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071806A (01	) 0000		ALMOST EVERY DAY
002 T071806B (02	) 1000		ONCE/TWICE A WEEK
003 T071806C (03	) 0100		ONCE/TWICE A MONTH
004 T071806D (04	) 0010		NEVER OR HARDLY EVER
005 T071806M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0116			
DESCRIPTION: HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071807A (01	) 0000		ALMOST EVERY DAY
002 T071807B (02	) 1000		ONCE/TWICE A WEEK
003 T071807C (03	) 0100		ONCE/TWICE A MONTH
004 T071807D (04	) 0010		NEVER OR HARDLY EVER
005 T071807M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0117			
DESCRIPTION: HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071808	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071808A (01	) 0000		ALMOST EVERY DAY
002 T071808B (02	) 1000		ONCE/TWICE A WEEK
003 T071808C (03	) 0100		ONCE/TWICE A MONTH
004 T071808D (04	) 0010		NEVER OR HARDLY EVER
005 T071808M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0118			
DESCRIPTION: HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071809	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071809A (01	) 0000		ALMOST EVERY DAY
002 T071809B (02	) 1000		ONCE/TWICE A WEEK
003 T071809C (03	) 0100		ONCE/TWICE A MONTH
004 T071809D (04	) 0010		NEVER OR HARDLY EVER
005 T071809M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0119			
DESCRIPTION: HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071810	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071810A (01	) 0000		ALMOST EVERY DAY
002 T071810B (02	) 1000		ONCE/TWICE A WEEK
003 T071810C (03	) 0100		ONCE/TWICE A MONTH
004 T071810D (04	) 0010		NEVER OR HARDLY EVER
005 T071810M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0120			
DESCRIPTION: HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071811	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071811A (01	) 0000		ALMOST EVERY DAY
002 T071811B (02	) 1000		ONCE/TWICE A WEEK
003 T071811C (03	) 0100		ONCE/TWICE A MONTH
004 T071811D (04	) 0010		NEVER OR HARDLY EVER
005 T071811M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0121			
DESCRIPTION: HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071812	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071812A (01	) 0000		ALMOST EVERY DAY
002 T071812B (02	) 1000		ONCE/TWICE A WEEK
003 T071812C (03	) 0100		ONCE/TWICE A MONTH
004 T071812D (04	) 0010		NEVER OR HARDLY EVER
005 T071812M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0122			
DESCRIPTION: HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T071813	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071813A (01	) 0000		ALMOST EVERY DAY
002 T071813B (02	) 1000		ONCE/TWICE A WEEK
003 T071813C (03	) 0100		ONCE/TWICE A MONTH
004 T071813D (04	) 0010		NEVER OR HARDLY EVER
005 T071813M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0123		
DESCRIPTION:	HOW OFTEN WRITING ASSIGNMENTS-LESS THAN ONE PAGE		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069901A (01	) 0000		ALMOST EVERY DAY
002 T069901B (02	) 1000		ONCE/TWICE A WEEK
003 T069901C (03	) 0100		ONCE/TWICE A MONTH
004 T069901D (04	) 0010		NEVER OR HARDLY EVER
005 T069901M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0124		
DESCRIPTION:	HOW OFTEN WRITING ASSIGNMENTS-ONE TO TWO PAGES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069902A (01	) 0000		ALMOST EVERY DAY
002 T069902B (02	) 1000		ONCE/TWICE A WEEK
003 T069902C (03	) 0100		ONCE/TWICE A MONTH
004 T069902D (04	) 0010		NEVER OR HARDLY EVER
005 T069902M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0125		
DESCRIPTION:	HOW OFTEN WRITING ASSIGNMENTS-THREE OR MORE PAGES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T069903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T069903A (01	) 0000		ALMOST EVERY DAY
002 T069903B (02	) 1000		ONCE/TWICE A WEEK
003 T069903C (03	) 0100		ONCE/TWICE A MONTH
004 T069903D (04	) 0010		NEVER OR HARDLY EVER
005 T069903M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0126		
DESCRIPTION:	HOW OFTEN STUDENTS USE COMPUTER-SPELL, PUNC, GRAM		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070001A (01	) 0000		ALMOST EVERY DAY
002 T070001B (02	) 1000		ONCE/TWICE A WEEK
003 T070001C (03	) 0100		ONCE/TWICE A MONTH
004 T070001D (04	) 0010		NEVER OR HARDLY EVER
005 T070001M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0127		
DESCRIPTION:	HOW OFTEN STUDENTS USE COMPUTERS-WRITE DRAFTS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070002A (01	) 0000		ALMOST EVERY DAY
002 T070002B (02	) 1000		ONCE/TWICE A WEEK
003 T070002C (03	) 0100		ONCE/TWICE A MONTH
004 T070002D (04	) 0010		NEVER OR HARDLY EVER
005 T070002M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0128		
DESCRIPTION:	HOW OFTEN STUDENTS USE COMPUTERS-READ STORIES		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070003A (01	) 0000		ALMOST EVERY DAY
002 T070003B (02	) 1000		ONCE/TWICE A WEEK
003 T070003C (03	) 0100		ONCE/TWICE A MONTH
004 T070003D (04	) 0010		NEVER OR HARDLY EVER
005 T070003M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0129		
DESCRIPTION:	HOW OFTEN READING ASSESSED-MULTIPLE-CHOICE TESTS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070101A (01	) 0000		ONCE/TWICE A WEEK
002 T070101B (02	) 1000		ONCE/TWICE A MONTH
003 T070101C (03	) 0100		ONCE/TWICE A YEAR
004 T070101D (04	) 0010		NEVER OR HARDLY EVER
005 T070101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0130		
DESCRIPTION:	HOW OFTEN READING ASSESSED-SHORT-ANSWER TESTS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070102A (01	) 0000		ONCE/TWICE A WEEK
002 T070102B (02	) 1000		ONCE/TWICE A MONTH
003 T070102C (03	) 0100		ONCE/TWICE A YEAR
004 T070102D (04	) 0010		NEVER OR HARDLY EVER
005 T070102M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0131			
DESCRIPTION: HOW OFTEN READ ASSESSED-PARAGRAPH WRITTEN RESPONSE			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070103A (01	) 0000		ONCE/TWICE A WEEK
002 T070103B (02	) 1000		ONCE/TWICE A MONTH
003 T070103C (03	) 0100		ONCE/TWICE A YEAR
004 T070103D (04	) 0010		NEVER OR HARDLY EVER
005 T070103M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0132			
DESCRIPTION: HOW OFTEN STUDENTS ASSESSED-INDIVIDUAL/GROUP PROJ			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070104	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070104A (01	) 0000		ONCE/TWICE A WEEK
002 T070104B (02	) 1000		ONCE/TWICE A MONTH
003 T070104C (03	) 0100		ONCE/TWICE A YEAR
004 T070104D (04	) 0010		NEVER OR HARDLY EVER
005 T070104M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0133			
DESCRIPTION: HOW OFTEN STUDENTS ASSESSED-READING PORTFOLIOS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070105	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070105A (01	) 0000		ONCE/TWICE A WEEK
002 T070105B (02	) 1000		ONCE/TWICE A MONTH
003 T070105C (03	) 0100		ONCE/TWICE A YEAR
004 T070105D (04	) 0010		NEVER OR HARDLY EVER
005 T070105M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0134			
DESCRIPTION: HOW OFTEN STUDENTS ASSESSED-ESSAYS/PAPERS ASSIGNED			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070106	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070106A (01	) 0000		ONCE/TWICE A WEEK
002 T070106B (02	) 1000		ONCE/TWICE A MONTH
003 T070106C (03	) 0100		ONCE/TWICE A YEAR
004 T070106D (04	) 0010		NEVER OR HARDLY EVER
005 T070106M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0135			
DESCRIPTION: HOW OFTEN STUDENTS ASSESSED-ORAL READING			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070107	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070107A (01	) 0000		ONCE/TWICE A WEEK
002 T070107B (02	) 1000		ONCE/TWICE A MONTH
003 T070107C (03	) 0100		ONCE/TWICE A YEAR
004 T070107D (04	) 0010		NEVER OR HARDLY EVER
005 T070107M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0136			
DESCRIPTION: HOW OFTEN WRITING ASSESSED-MULTIPLE-CHOICE TESTS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070201A (01	) 0000		ONCE/TWICE A WEEK
002 T070201B (02	) 1000		ONCE/TWICE A MONTH
003 T070201C (03	) 0100		ONCE/TWICE A YEAR
004 T070201D (04	) 0010		NEVER OR HARDLY EVER
005 T070201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0137			
DESCRIPTION: HOW OFTEN WRITING ASSESSED-PARAGRAPH WRITTEN			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070202A (01	) 0000		ONCE/TWICE A WEEK
002 T070202B (02	) 1000		ONCE/TWICE A MONTH
003 T070202C (03	) 0100		ONCE/TWICE A YEAR
004 T070202D (04	) 0010		NEVER OR HARDLY EVER
005 T070202M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0138			
DESCRIPTION: HOW OFTEN WRITING ASSESSED-ESSAYS, REPORTS			
GRADES/ASSESSMENTS: N04, N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T070203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070203A (01	) 0000		ONCE/TWICE A WEEK
002 T070203B (02	) 1000		ONCE/TWICE A MONTH
003 T070203C (03	) 0100		ONCE/TWICE A YEAR
004 T070203D (04	) 0010		NEVER OR HARDLY EVER
005 T070203M (M	) 0001		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0139		
DESCRIPTION:	HOW OFTEN WRITING ASSESSED-WRITING PORTFOLIOS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070204	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070204A (01	) 0000		ONCE/TWICE A WEEK
002 T070204B (02	) 1000		ONCE/TWICE A MONTH
003 T070204C (03	) 0100		ONCE/TWICE A YEAR
004 T070204D (04	) 0010		NEVER OR HARDLY EVER
005 T070204M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0140		
DESCRIPTION:	HOW IMPORTANT TO GRADE-SPELLING, GRAMMAR, PUNC		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070301A (01	) 000		VERY IMPORTANT
002 T070301B (02	) 100		MODERATELY IMPORTANT
003 T070301C (03	) 010		UNIMPORTANT
004 T070301M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0141		
DESCRIPTION:	HOW IMPORTANT TO GRADE-ORGANIZATION/COHERENCE		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070302A (01	) 000		VERY IMPORTANT
002 T070302B (02	) 100		MODERATELY IMPORTANT
003 T070302C (03	) 010		UNIMPORTANT
004 T070302M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0142		
DESCRIPTION:	HOW IMPORTANT TO GRADE-QUALITY/CREATIVITY OF IDEAS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070303	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070303A (01	) 000		VERY IMPORTANT
002 T070303B (02	) 100		MODERATELY IMPORTANT
003 T070303C (03	) 010		UNIMPORTANT
004 T070303M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0143		
DESCRIPTION:	HOW IMPORTANT TO GRADE-LENGTH OF PAPERS		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070304	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070304A (01	) 000		VERY IMPORTANT
002 T070304B (02	) 100		MODERATELY IMPORTANT
003 T070304C (03	) 010		UNIMPORTANT
004 T070304M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0144		
DESCRIPTION:	HOW IMPORTANT TO GRADE-ACCOMPLISH WRITING PURPOSE		
GRADES/ASSESSMENTS:	N04, N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070305	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070305A (01	) 000		VERY IMPORTANT
002 T070305B (02	) 100		MODERATELY IMPORTANT
003 T070305C (03	) 010		UNIMPORTANT
004 T070305M (M	) 001		MISSING
004 T070305M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0145		
DESCRIPTION:	DO YOU TEACH READING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071601Y (01	) 0		YES
002 T071601M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0146		
DESCRIPTION:	DO YOU TEACH WRITING		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071602Y (01	) 0		YES
002 T071602M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0147		
DESCRIPTION:	DO YOU TEACH ENGLISH		
GRADES/ASSESSMENTS:	N08, S08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071603Y (01	) 0		YES
002 T071603M (M	) 1		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0148			
DESCRIPTION: DO YOU TEACH-OTHER			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071604Y (01	) 0		YES
002 T071604M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0149			
DESCRIPTION: YEARS TOTAL TAUGHT ELEMENTARY OR SECONDARY			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T040301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T040301A (01	) 00000		2 YEARS OR LESS
002 T040301B (02	) 10000		3-5 YEARS
003 T040301C (03	) 01000		6-10 YEARS
004 T040301D (04	) 00100		11-24 YEARS
005 T040301E (05	) 00010		25 YEARS OR MORE
006 T040301M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0150			
DESCRIPTION: YEARS TOTAL TAUGHT READING			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071701A (01	) 000000		NOT TAUGHT
002 T071701B (02	) 100000		2 YEARS OR LESS
003 T071701C (03	) 010000		3-5 YEARS
004 T071701D (04	) 001000		6-10 YEARS
005 T071701E (05	) 000100		11-24 YEARS
006 T071701F (06	) 000010		25 YEARS OR MORE
007 T071701M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0151			
DESCRIPTION: YEARS TOTAL TAUGHT WRITING			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071702A (01	) 000000		NOT TAUGHT
002 T071702B (02	) 100000		2 YEARS OR LESS
003 T071702C (03	) 010000		3-5 YEARS
004 T071702D (04	) 001000		6-10 YEARS
005 T071702E (05	) 000100		11-24 YEARS
006 T071702F (06	) 000010		25 YEARS OR MORE
007 T071702M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0152			
DESCRIPTION: YEARS TOTAL TAUGHT ENGLISH			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071703A (01	) 000000		NOT TAUGHT
002 T071703B (02	) 100000		2 YEARS OR LESS
003 T071703C (03	) 010000		3-5 YEARS
004 T071703D (04	) 001000		6-10 YEARS
005 T071703E (05	) 000100		11-24 YEARS
006 T071703F (06	) 000010		25 YEARS OR MORE
007 T071703M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0153			
DESCRIPTION: YEARS TOTAL TAUGHT- OTHER			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071704	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071704A (01	) 000000		NOT TAUGHT
002 T071704B (02	) 100000		2 YEARS OR LESS
003 T071704C (03	) 010000		3-5 YEARS
004 T071704D (04	) 001000		6-10 YEARS
005 T071704E (05	) 000100		11-24 YEARS
006 T071704F (06	) 000010		25 YEARS OR MORE
007 T071704M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0154			
DESCRIPTION: LAST 12 MOS, PROF DEV-LITERATURE			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067703A (01	) 00000		NONE
002 T067703B (02	) 10000		LESS THAN 6 HOURS
003 T067703C (03	) 01000		6 - 15 HOURS
004 T067703D (04	) 00100		16 - 35 HOURS
005 T067703E (05	) 00010		MORE THAN 35 HOURS
006 T067703M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0155			
DESCRIPTION: ARE STUDENTS ASSIGNED TO THIS CLASS BY ABILITY			
GRADES/ASSESSMENTS: N08, S08			
CONDITIONING VAR LABEL:			
NAEP ID:	T068501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 T068501Y (01	) 00		YES
002 T068501N (02	) 10		NO
003 T068501M (M	) 01		MISSING

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0156			
DESCRIPTION:	HOW OFTEN STUDENTS CHOOSE WRITING TOPIC			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069801A (01	) 000		ALWAYS	
002 T069801B (02	) 100		SOMETIMES	
003 T069801C (03	) 010		NEVER	
004 T069801M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0157			
DESCRIPTION:	HOW OFTEN STUDENTS PLAN THEIR WRITING			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069802A (01	) 000		ALWAYS	
002 T069802B (02	) 100		SOMETIMES	
003 T069802C (03	) 010		NEVER	
004 T069802M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0158			
DESCRIPTION:	HOW OFTEN STUDENTS DEFINE PURPOSES AND AUDIENCE			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069803A (01	) 000		ALWAYS	
002 T069803B (02	) 100		SOMETIMES	
003 T069803C (03	) 010		NEVER	
004 T069803M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0159			
DESCRIPTION:	HOW OFTEN STUDENTS MAKE FORMAL OUTLINE			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069804A (01	) 000		ALWAYS	
002 T069804B (02	) 100		SOMETIMES	
003 T069804C (03	) 010		NEVER	
004 T069804M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0160			
DESCRIPTION:	HOW OFTEN STUDENTS WRITE MORE THAN ONE DRAFT			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069805A (01	) 000		ALWAYS	
002 T069805B (02	) 100		SOMETIMES	
003 T069805C (03	) 010		NEVER	
004 T069805M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0161			
DESCRIPTION:	HOW OFTEN STUDENTS USE RESOURCES OTHER THAN TEXT			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069806A (01	) 000		ALWAYS	
002 T069806B (02	) 100		SOMETIMES	
003 T069806C (03	) 010		NEVER	
004 T069806M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0162			
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS WRITING WHILE WRITING			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069807A (01	) 000		ALWAYS	
002 T069807B (02	) 100		SOMETIMES	
003 T069807C (03	) 010		NEVER	
004 T069807M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0163			
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS OTHERS' WRITING			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069808	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069808A (01	) 000		ALWAYS	
002 T069808B (02	) 100		SOMETIMES	
003 T069808C (03	) 010		NEVER	
004 T069808M (M	) 001		MISSING	
CONDITIONING VARIABLE ID:	TCHR0164			
DESCRIPTION:	HOW OFTEN STUDENTS CHECK PROPER SPELLING, GRAMMAR			
GRADES/ASSESSMENTS:	N08, S08			
CONDITIONING VAR LABEL:				
NAEP ID:	T069809	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3	
001 T069809A (01	) 000		ALWAYS	
002 T069809B (02	) 100		SOMETIMES	
003 T069809C (03	) 010		NEVER	
004 T069809M (M	) 001		MISSING	

Table F-6 (continued)
1998 Writing Conditioning Variable Specifications

CONDITIONING VARIABLE ID:		TCHR0165	
DESCRIPTION:		HOW OFTEN STUDENTS DISCUSS WRITING WITH FAMILY	
GRADES/ASSESSMENTS:		N08, S08	
CONDITIONING VAR LABEL:			
NAEP ID:	T069810	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069810A (01	) 000	ALWAYS	
002 T069810B (02	) 100	SOMETIMES	
003 T069810C (03	) 010	NEVER	
004 T069810M (M	) 001	MISSING	
CONDITIONING VARIABLE ID:		TCHR0166	
DESCRIPTION:		HOW OFTEN STUDENTS CONTRIBUTE TO COLLECTION	
GRADES/ASSESSMENTS:		N08, S08	
CONDITIONING VAR LABEL:			
NAEP ID:	T069811	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069811A (01	) 000	ALWAYS	
002 T069811B (02	) 100	SOMETIMES	
003 T069811C (03	) 010	NEVER	
004 T069811M (M	) 001	MISSING	
CONDITIONING VARIABLE ID:		TCHR0167	
DESCRIPTION:		HOW OFTEN STUDENTS WORK ON AN ASSIGNED TOPIC	
GRADES/ASSESSMENTS:		N08, S08	
CONDITIONING VAR LABEL:			
NAEP ID:	T069812	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069812A (01	) 000	ALWAYS	
002 T069812B (02	) 100	SOMETIMES	
003 T069812C (03	) 010	NEVER	
004 T069812M (M	) 001	MISSING	
CONDITIONING VARIABLE ID:		TCHR0168	
DESCRIPTION:		HOW OFTEN STUDENTS FOLLOW ASSIGNED FORMAT	
GRADES/ASSESSMENTS:		N08, S08	
CONDITIONING VAR LABEL:			
NAEP ID:	T069813	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T069813A (01	) 000	ALWAYS	
002 T069813B (02	) 100	SOMETIMES	
003 T069813C (03	) 010	NEVER	
004 T069813M (M	) 001	MISSING	
CONDITIONING VARIABLE ID:		TCHR0169	
DESCRIPTION:		WHAT IS THE NUMBER OF STUDENTS IN EACH CLASS? (8TH GRADE)	
GRADES/ASSESSMENTS:		N08, S08	
CONDITIONING VAR LABEL:		CLASSIZ8	
NAEP ID:	TCSIZE	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 CLASIZ-1 (1	) 00000	AVERAGE CLASS SIZE:	1-20 STUDENTS
002 CLASIZ-2 (2	) 10000	AVERAGE CLASS SIZE:	21-25 STUDENTS
003 CLASIZ-3 (3	) 01000	AVERAGE CLASS SIZE:	26-30 STUDENTS
004 CLASIZ-4 (4	) 00100	AVERAGE CLASS SIZE:	31-35 STUDENTS
005 CLASIZ-5 (5	) 00010	AVERAGE CLASS SIZE:	36 OR MORE STUDENTS
006 CLASIZ-? (M	) 00001	AVERAGE CLASS SIZE:	MISSING, DOES NOT APPLY

Table F-7
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0001				
DESCRIPTION:	GRAND MEAN				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	OVERALL			TOTAL NUMBER OF SPECIFIED CONTRASTS:	1
NAEP ID:	BKSER			NUMBER OF INDEPENDENT CONTRASTS:	1
TYPE OF CONTRAST:	OTHER				
001 OVERALL (@)	1			GRAND MEAN	
CONDITIONING VARIABLE ID:	BACK0002				
DESCRIPTION:	DERIVED SEX				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	GENDER			TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
NAEP ID:	DSEX			NUMBER OF INDEPENDENT CONTRASTS:	1
TYPE OF CONTRAST:	CLASS				
001 MALE (1,M)	0			MALE	
002 FEMALE (2)	1			FEMALE	
CONDITIONING VARIABLE ID:	BACK0003				
DESCRIPTION:	DERIVED RACE/ETHNICITY				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	RACE/ETH			TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
NAEP ID:	DRACE			NUMBER OF INDEPENDENT CONTRASTS:	3
TYPE OF CONTRAST:	CLASS				
001 WHI/AI/O (1,5,6,M)	000			RACE/ETHNICITY:	WHITE, AMERICAN
INDIAN/ALASKAN NATIVE, OTHER, MISSING, UNCLASSIFIED					
002 BLACK (2)	100			RACE/ETHNICITY:	BLACK
003 HISPANIC (3)	010			RACE/ETHNICITY:	HISPANIC
004 ASIAN (4)	001			RACE/ETHNICITY:	ASIAN / PACIFIC ISLANDER
CONDITIONING VARIABLE ID:	BACK0004				
DESCRIPTION:	IF HISPANIC, WHAT IS YOUR HISPANIC BACKGROUND?				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	HISPANIC			TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
NAEP ID:	B003101			NUMBER OF INDEPENDENT CONTRASTS:	4
TYPE OF CONTRAST:	CLASS				
001 NOT HISP (1)	0000			HISPANIC:	NOT HISPANIC
002 MEXICAN (2)	1000			HISPANIC:	MEXICAN, MEXICAN AMERICAN, CHICANO
003 PUER RIC (3)	0100			HISPANIC:	PUERTO RICAN
004 CUBN,OTH (4,5)	0010			HISPANIC:	CUBAN, OTHER
005 HISP-? (M)	0001			HISPANIC:	MISSING
CONDITIONING VARIABLE ID:	BACK0005				
DESCRIPTION:	TOL 7 - TYPE OF LOCATION				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	TOL7			TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
NAEP ID:	TOL7			NUMBER OF INDEPENDENT CONTRASTS:	6
TYPE OF CONTRAST:	CLASS				
001 BIG CTY7 (1)	000000			TOL7:	LARGE CITY
002 MID CTY7 (2,M)	100000			TOL7:	MID-SIZE CITY
003 FR/LCTY7 (3)	010000			TOL7:	URBAN FRINGE OF LARGE CITY
004 FR/MCTY7 (4)	001000			TOL7:	URBAN FRINGE OF MID-SIZE CITY
005 LAR TWN7 (5)	000100			TOL7:	LARGE TOWN
006 SML TWN7 (6)	000010			TOL7:	SMALL TOWN
007 OTHER (7)	000001			TOL7:	OTHER
CONDITIONING VARIABLE ID:	BACK0006				
DESCRIPTION:	TYPE OF LOCALE (5 CATEGORIES)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	TOL5			TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
NAEP ID:	TOL5			NUMBER OF INDEPENDENT CONTRASTS:	4
TYPE OF CONTRAST:	CLASS				
001 BIG CTY5 (1)	0000			TOL5:	LARGE CITY
002 MID CTY5 (2,M)	1000			TOL5:	MID-SIZE CITY
003 FR/BTWN5 (3)	0100			TOL5:	URBAN FRINGE AND LARGE TOWN
004 SML TWN5 (4)	0010			TOL5:	SMALL TOWN
005 RURAL5 (5)	0001			TOL5:	RURAL (MSA AND NON-MSA)
CONDITIONING VARIABLE ID:	BACK0007				
DESCRIPTION:	PARENTS' HIGHEST LEVEL OF EDUCATION, GRADE 4				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	PARED2			TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
NAEP ID:	PARED2			NUMBER OF INDEPENDENT CONTRASTS:	4
TYPE OF CONTRAST:	CLASS				
001 < HS (1)	0000			PARED:	LESS THAN HIGH SCHOOL
002 HS GRAD (2)	1000			PARED:	HIGH SCHOOL GRADUATE
003 POST HS (3)	0100			PARED:	POST HIGH SCHOOL
004 COL GRAD (4)	0010			PARED:	COLLEGE GRADUATE
005 PARED-? (5,M)	0001			PARED:	MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0008				
DESCRIPTION:	REGION OF THE COUNTRY				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	REGION			TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
NAEP ID:	REGION			NUMBER OF INDEPENDENT CONTRASTS:	3
TYPE OF CONTRAST:	CLASS				
001 N EAST (1,M)	000			REGION:	NORTHEAST
002 S EAST (2)	100			REGION:	SOUTHEAST
003 CENTRAL (3)	010			REGION:	CENTRAL
004 WEST (4,5)	001			REGION:	WEST, TERRITORIES (NONE)
CONDITIONING VARIABLE ID:	BACK0009				
DESCRIPTION:	SCHOOL TYPE				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	SCHTYPE			TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
NAEP ID:	SCHTYPE			NUMBER OF INDEPENDENT CONTRASTS:	2
TYPE OF CONTRAST:	CLASS				
001 PUBLIC (1)	00			SCHOOL TYPE:	PUBLIC,
002 PRIVATE (2,4,5,M)	10			SCHOOL TYPE:	PRIVATE, BIA, DEPARTMENT OF
DEFENSE, MISSING					
003 CATHOLIC (3)	01			SCHOOL TYPE:	CATHOLIC

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0010				
DESCRIPTION:	RACE				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	RACE				
NAEP ID:	RACE		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	3	
001 WHI/AI/O (1,5,6,M)	) 000				RACE: WHITE, AMERICAN INDIAN/ALASKAN NATIVE, OTHER, MISSING, UNCLASSIFIED
002 BLACK (2)	) 100				RACE: BLACK
003 HISPANIC (3)	) 010				RACE: HISPANIC
004 ASIAN (4)	) 001				RACE: ASIAN / PACIFIC ISLANDER
CONDITIONING VARIABLE ID:	BACK0011				
DESCRIPTION:	INDIVIDUALIZED EDUCATION PLAN				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	IEP				
NAEP ID:	IEP		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 IEP-YES (1)	) 0				IEP: YES
002 IEP-NO (2,M)	) 1				IEP: NO
CONDITIONING VARIABLE ID:	BACK0012				
DESCRIPTION:	LIMITED ENGLISH PROFICIENCY				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	LEP				
NAEP ID:	LEP		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 LEP-YES (1)	) 0				LEP: YES
002 LEP-NO (2,M)	) 1				LEP: NO
CONDITIONING VARIABLE ID:	BACK0013				
DESCRIPTION:	TITLE 1: (BOOK COVER)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	TITLE 1				
NAEP ID:	TITLE1		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TITLE-Y (1)	) 0				TITLE 1: YES
002 TITLE-N (2,M)	) 1				TITLE 1: NO
CONDITIONING VARIABLE ID:	BACK0014				
DESCRIPTION:	DO YOU RECEIVE A FREE OR REDUCED-PRICE LUNCH?				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	LUNCH				
NAEP ID:	SLUNCH		TOTAL NUMBER OF SPECIFIED CONTRASTS:	6	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	5	
001 NOT ELIG (1)	) 00000				LUNCH PROGRAM: NOT ELIGIBLE
002 RED PRIC (2)	) 10000				LUNCH PROGRAM: REDUCED PRICE
003 FREE (3)	) 01000				LUNCH PROGRAM: FREE
004 INFO N/A (4,M)	) 00100				LUNCH PROGRAM: INFO NOT AVAILABLE
005 SCH/REF (5)	) 00010				LUNCH PROGRAM: SCHOOL REFUSAL
006 SCH/NP (6)	) 00001				LUNCH PROGRAM: SCHOOL NOT PARTICIPATE
CONDITIONING VARIABLE ID:	BACK0015				
DESCRIPTION:	HOW MUCH TELEVISION/VIDEO GAMES DO YOU USUALLY WATCH EACH DAY? (LINEAR)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	TVWATCHL				
NAEP ID:	B013901		TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:	LINEAR		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TVLIN-0 (1)	) 0				TV WATCHING (LINEAR) (0 TO 6+ HOURS PER DAY)
002 TVLIN-1 (2)	) 1				TV WATCHING (LINEAR)
003 TVLIN-2 (3)	) 2				TV WATCHING (LINEAR)
004 TVLIN-3 (4,M)	) 3				TV WATCHING (LINEAR)
005 TVLIN-4 (5)	) 4				TV WATCHING (LINEAR)
006 TVLIN-5 (6)	) 5				TV WATCHING (LINEAR)
007 TVLIN-6 (7)	) 6				TV WATCHING (LINEAR)
CONDITIONING VARIABLE ID:	BACK0016				
DESCRIPTION:	HOW MUCH TELEVISION/VIDEO GAMES DO YOU USUALLY WATCH EACH DAY? (QUADRATIC)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	TVWATCHQ				
NAEP ID:	B013901		TOTAL NUMBER OF SPECIFIED CONTRASTS:	1	
TYPE OF CONTRAST:	QUADRATIC		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 TV-QUAD (1-7,M=4)	) 1.0 + -2.0*X + 1.0*X**2				TV WATCHING (QUADRATIC)
CONDITIONING VARIABLE ID:	BACK0017				
DESCRIPTION:	HOMEWORK ASSIGNED?: BASED ON TIME SPENT ON HOMEWORK EACH DAY.				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	HWASSIGN				
NAEP ID:	B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 HW-MISS (M)	) 00				HOMEWORK ASSIGNED?: MISSING
002 HW-NO (1)	) 10				HOMEWORK ASSIGNED?: NO
003 HW-YES (2-5)	) 01				HOMEWORK ASSIGNED?: YES
CONDITIONING VARIABLE ID:	BACK0018				
DESCRIPTION:	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY? (LINEAR)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	HOMEWRKL				
NAEP ID:	B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	LINEAR		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 HWLIN-0 (1,2,M)	) 0				HOMEWORK (LINEAR): DON'T HAVE ANY, DON'T DO ANY, MISSING
002 HWLIN-1 (3)	) 1				HOMEWORK (LINEAR): 1/2 HOUR OR LESS
003 HWLIN-2 (4)	) 2				HOMEWORK (LINEAR): 1 HOUR
004 HWLIN-3 (5)	) 3				HOMEWORK (LINEAR): MORE THAN 1 HOUR

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0019				
DESCRIPTION:	HOW MUCH TIME DO YOU USUALLY SPEND ON HOMEWORK EACH DAY (QUADRATIC)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	HOMEWRKQ				
NAEP ID:	B006601		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4	
TYPE OF CONTRAST:	SCALE		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 HWQUAD-0 (1,2,M	) 0			HOMEWORK (QUADRATIC):	DON'T HAVE ANY, DON'T DO ANY, MISSING
002 HWQUAD-1 (3	) 1			HOMEWORK (QUADRATIC):	1/2 HOUR OR LESS
003 HWQUAD-2 (4	) 4			HOMEWORK (QUADRATIC):	1 HOUR
004 HWQUAD-3 (5	) 9			HOMEWORK (QUADRATIC):	MORE THAN 1 HOUR
CONDITIONING VARIABLE ID:	BACK0020				
DESCRIPTION:	NUMBER OF ITEMS IN THE HOME (NEWSPAPER, > 25 BOOKS, ENCYCLOPEDIA, MAGAZINES) (DERIVED)				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	HOMEITMS				
NAEP ID:	HOMEEN3		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 HITEM<=2 (1,M	) 00			ITEMS IN HOME:	ZERO TO TWO ITEMS, MISSING
002 HITEM=3 (2	) 10			ITEMS IN HOME:	THREE ITEMS
003 HITEM=4 (3	) 01			ITEMS IN HOME:	FOUR ITEMS
CONDITIONING VARIABLE ID:	BACK0021				
DESCRIPTION:	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	PGSREAD1				
NAEP ID:	B001101		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 PGS<6,? (5,M	) 0			PAGES READ:	5 OR FEWER A DAY, MISSING
002 PGS>5 (1,2,3,4	) 1			PAGES READ:	6-10, 11-15, 16-20, 20 OR MORE
CONDITIONING VARIABLE ID:	BACK0022				
DESCRIPTION:	ABOUT HOW MANY PAGES A DAY DO YOU HAVE TO READ FOR SCHOOL AND HOMEWORK?				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	PGSREAD2				
NAEP ID:	B001101		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 PGS<11,? (4,5,M	) 0			PAGES READ:	6-10, 5 OR FEWER A DAY, MISSING
002 PGS>10 (1,2,3	) 1			PAGES READ:	11-15, 16-20, 20 OR MORE
CONDITIONING VARIABLE ID:	BACK0023				
DESCRIPTION:	STUDENTS ACCOMMODATION STATUS				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	ACCOM				
NAEP ID:	ACCOM		TOTAL NUMBER OF SPECIFIED CONTRASTS:	2	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	1	
001 ACCOM (1,2	) 0			ACCOMMODATED WITH APPROPRIATE BOOK OR WRONG BOOK	
002 NO ACCOM (3	) 1			NON ACCOMMODATED	
CONDITIONING VARIABLE ID:	BACK0024				
DESCRIPTION:	NUMBER OF YEARS TAKING CIVICS COURSES IN HIGH SCHOOL				
GRADES/ASSESSMENTS:	N12				
CONDITIONING VAR LABEL:	NYRCIV				
NAEP ID:	NYRCIV		TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	4	
001 NYRCIV A (1,M	) 0000			NONE	
002 NYRCIV B (2	) 1000			1 YEAR	
003 NYRCIV C (3	) 0100			2 YEARS	
004 NYRCIV D (4	) 0010			3 YEARS	
005 NYRCIV E (5	) 0001			4 YEARS	
CONDITIONING VARIABLE ID:	BACK0025				
DESCRIPTION:	CIVICS COURSES TAKING IN 11TH AND 12TH GRADES				
GRADES/ASSESSMENTS:	N12				
CONDITIONING VAR LABEL:	NYRCIV2				
NAEP ID:	NYRCIV2		TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS		NUMBER OF INDEPENDENT CONTRASTS:	2	
001 NYRCIV2A (1	) 00			NEITHER	
002 NYRCIV2B (2	) 10			EITHER 11TH OR 12TH	
003 NYRCIV2C (3	) 01			BOTH 11TH AND 12TH	
CONDITIONING VARIABLE ID:	BACK0026				
DESCRIPTION:	INTERACTION: GENDER BY RACE/ETHNICITY				
GRADES/ASSESSMENTS:	N04, N08, N12				
CONDITIONING VAR LABEL:	GEND/RAC				
NAEP ID:	N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	8	
TYPE OF CONTRAST:	INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	3	
001 G/R 11 (11	) 010101			GEND/RAC INTACT:	1. MALE 1. WHI/AI/O
002 G/R 12 (12	) ~10000			GEND/RAC INTACT:	1. MALE 2. BLACK
003 G/R 13 (13	) 00-100			GEND/RAC INTACT:	1. MALE 3. HISPANIC
004 G/R 14 (14	) 0000-1			GEND/RAC INTACT:	1. MALE 4. ASIAN
005 G/R 21 (21	) ~1-1-1			GEND/RAC INTACT:	2. FEMALE 1. WHI/AI/O
006 G/R 22 (22	) 010000			GEND/RAC INTACT:	2. FEMALE 2. BLACK
007 G/R 23 (23	) 000100			GEND/RAC INTACT:	2. FEMALE 3. HISPANIC
008 G/R 24 (24	) 000001			GEND/RAC INTACT:	2. FEMALE 4. ASIAN

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: BACK0039		DESCRIPTION: INTERACTION: ACCOMMODATED BY PARENTS' EDUCATION ALL GRADES	
GRADES/ASSESSMENTS: N04, N08, N12		CONDITIONING VAR LABEL: ACCO/PAR	
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	10
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	4
001 A/P 11 (11)	) 01010101	ACCO/PAR INTACT:	1. ACCOM 1. < HS
002 A/P 12 (12)	) -1000000	ACCO/PAR INTACT:	1. ACCOM 2. HS GRAD
003 A/P 13 (13)	) 00-10000	ACCO/PAR INTACT:	1. ACCOM 3. POST HS
004 A/P 14 (14)	) 0000-100	ACCO/PAR INTACT:	1. ACCOM 4. COL GRAD
005 A/P 15 (15)	) 000000-1	ACCO/PAR INTACT:	1. ACCOM 5. PARED-?
006 A/P 21 (21)	) -1-1-1-1	ACCO/PAR INTACT:	2. NO ACCOM 1. < HS
007 A/P 22 (22)	) 01000000	ACCO/PAR INTACT:	2. NO ACCOM 2. HS GRAD
008 A/P 23 (23)	) 00010000	ACCO/PAR INTACT:	2. NO ACCOM 3. POST HS
009 A/P 24 (24)	) 00000100	ACCO/PAR INTACT:	2. NO ACCOM 4. COL GRAD
010 A/P 25 (25)	) 00000001	ACCO/PAR INTACT:	2. NO ACCOM 5. PARED-?
CONDITIONING VARIABLE ID: BACK0040		DESCRIPTION: INTERACTION: ACCOMMODATED BY SCHOOL TYPE	
GRADES/ASSESSMENTS: N04, N08, N12		CONDITIONING VAR LABEL: ACCO/SCH	
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	2
001 A/S 11 (11)	) 0101	ACCO/SCH INTACT:	1. ACCOM 1. PUBLIC
002 A/S 12 (12)	) -100	ACCO/SCH INTACT:	1. ACCOM 2. PRIVATE
003 A/S 13 (13)	) 00-1	ACCO/SCH INTACT:	1. ACCOM 3. CATHOLIC
004 A/S 21 (21)	) -1-1	ACCO/SCH INTACT:	2. NO ACCOM 1. PUBLIC
005 A/S 22 (22)	) 0100	ACCO/SCH INTACT:	2. NO ACCOM 2. PRIVATE
006 A/S 23 (23)	) 0001	ACCO/SCH INTACT:	2. NO ACCOM 3. CATHOLIC
CONDITIONING VARIABLE ID: BACK0041		DESCRIPTION: INTERACTION: ACCOMMODATED BY IEP	
GRADES/ASSESSMENTS: N04, N08, N12		CONDITIONING VAR LABEL: ACCO/IEP	
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	1
001 A/I 11 (11)	) 01	ACCO/IEP INTACT:	1. ACCOM 1. IEP-YES
002 A/I 12 (12)	) -1	ACCO/IEP INTACT:	1. ACCOM 2. IEP-NO
003 A/I 21 (21)	) -1	ACCO/IEP INTACT:	2. NO ACCOM 1. IEP-YES
004 A/I 22 (22)	) 01	ACCO/IEP INTACT:	2. NO ACCOM 2. IEP-NO
CONDITIONING VARIABLE ID: BACK0042		DESCRIPTION: INTERACTION: ACCOMMODATED BY LEP	
GRADES/ASSESSMENTS: N04, N08, N12		CONDITIONING VAR LABEL: ACCO/LEP	
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	1
001 A/L 11 (11)	) 01	ACCO/LEP INTACT:	1. ACCOM 1. LEP-YES
002 A/L 12 (12)	) -1	ACCO/LEP INTACT:	1. ACCOM 2. LEP-NO
003 A/L 21 (21)	) -1	ACCO/LEP INTACT:	2. NO ACCOM 1. LEP-YES
004 A/L 22 (22)	) 01	ACCO/LEP INTACT:	2. NO ACCOM 2. LEP-NO
CONDITIONING VARIABLE ID: BACK0043		DESCRIPTION: INTERACTION: GENDER BY YEARS TAKING CIVICS COURSES	
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: GEND/NYR	
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	10
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	4
001 G/N 11 (11)	) 01010101	GEND/NYR INTACT:	1. MALE 1. NYRCIV A
002 G/N 12 (12)	) -1000000	GEND/NYR INTACT:	1. MALE 2. NYRCIV B
003 G/N 13 (13)	) 00-10000	GEND/NYR INTACT:	1. MALE 3. NYRCIV C
004 G/N 14 (14)	) 0000-100	GEND/NYR INTACT:	1. MALE 4. NYRCIV D
005 G/N 15 (15)	) 000000-1	GEND/NYR INTACT:	1. MALE 5. NYRCIV E
006 G/N 21 (21)	) -1-1-1-1	GEND/NYR INTACT:	2. FEMALE 1. NYRCIV A
007 G/N 22 (22)	) 01000000	GEND/NYR INTACT:	2. FEMALE 2. NYRCIV B
008 G/N 23 (23)	) 00010000	GEND/NYR INTACT:	2. FEMALE 3. NYRCIV C
009 G/N 24 (24)	) 00000100	GEND/NYR INTACT:	2. FEMALE 4. NYRCIV D
010 G/N 25 (25)	) 00000001	GEND/NYR INTACT:	2. FEMALE 5. NYRCIV E
CONDITIONING VARIABLE ID: BACK0044		DESCRIPTION: INTERACTION: RACE/ETHNICITY BY YEARS TAKING CIVICS COURSES	
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: RACE/NYR	
NAEP ID: N/A		TOTAL NUMBER OF SPECIFIED CONTRASTS:	20
TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS:	12
001 R/N 11 (11)	) 010101010101010101010101	RACE/NYR INTACT:	1. WHI/AI/O 1. NYRCIV A
002 R/N 12 (12)	) -1000000-1000000-1000000	RACE/NYR INTACT:	1. WHI/AI/O 2. NYRCIV B
003 R/N 13 (13)	) 00-1000000-1000000-10000	RACE/NYR INTACT:	1. WHI/AI/O 3. NYRCIV C
004 R/N 14 (14)	) 0000-1000000-1000000-100	RACE/NYR INTACT:	1. WHI/AI/O 4. NYRCIV D
005 R/N 15 (15)	) 000000-1000000-1000000-1	RACE/NYR INTACT:	1. WHI/AI/O 5. NYRCIV E
006 R/N 21 (21)	) -1-1-1-100000000000000000	RACE/NYR INTACT:	2. BLACK 1. NYRCIV A
007 R/N 22 (22)	) 010000000000000000000000	RACE/NYR INTACT:	2. BLACK 2. NYRCIV B
008 R/N 23 (23)	) 000100000000000000000000	RACE/NYR INTACT:	2. BLACK 3. NYRCIV C
009 R/N 24 (24)	) 000001000000000000000000	RACE/NYR INTACT:	2. BLACK 4. NYRCIV D
010 R/N 25 (25)	) 000000010000000000000000	RACE/NYR INTACT:	2. BLACK 5. NYRCIV E
011 R/N 31 (31)	) 00000000-1-1-1-100000000	RACE/NYR INTACT:	3. HISPANIC 1. NYRCIV A
012 R/N 32 (32)	) 000000001000000000000000	RACE/NYR INTACT:	3. HISPANIC 2. NYRCIV B
013 R/N 33 (33)	) 000000000010000000000000	RACE/NYR INTACT:	3. HISPANIC 3. NYRCIV C
014 R/N 34 (34)	) 000000000000100000000000	RACE/NYR INTACT:	3. HISPANIC 4. NYRCIV D
015 R/N 35 (35)	) 000000000000001000000000	RACE/NYR INTACT:	3. HISPANIC 5. NYRCIV E
016 R/N 41 (41)	) 0000000000000000-1-1-1-1	RACE/NYR INTACT:	4. ASIAN 1. NYRCIV A
017 R/N 42 (42)	) 000000000000000001000000	RACE/NYR INTACT:	4. ASIAN 2. NYRCIV B
018 R/N 43 (43)	) 000000000000000000010000	RACE/NYR INTACT:	4. ASIAN 3. NYRCIV C
019 R/N 44 (44)	) 000000000000000000000100	RACE/NYR INTACT:	4. ASIAN 4. NYRCIV D
020 R/N 45 (45)	) 000000000000000000000001	RACE/NYR INTACT:	4. ASIAN 5. NYRCIV E

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: BACK0048		DESCRIPTION: INTERACTION: ACCOMMODATED BY YEARS TAKING CIVICS COURSES			
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: ACCO/NYR		TOTAL NUMBER OF SPECIFIED CONTRASTS: 10	
NAEP ID: N/A		TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 4	
001 A/N 11 (11)	) 01010101	ACCO/NYR INTACT:	1. ACCOM	1. NYRCIV A	
002 A/N 12 (12)	) -1000000	ACCO/NYR INTACT:	1. ACCOM	2. NYRCIV B	
003 A/N 13 (13)	) 00-10000	ACCO/NYR INTACT:	1. ACCOM	3. NYRCIV C	
004 A/N 14 (14)	) 0000-100	ACCO/NYR INTACT:	1. ACCOM	4. NYRCIV D	
005 A/N 15 (15)	) 000000-1	ACCO/NYR INTACT:	1. ACCOM	5. NYRCIV E	
006 A/N 21 (21)	) -1-1-1-1	ACCO/NYR INTACT:	2. NO ACCOM	1. NYRCIV A	
007 A/N 22 (22)	) 01000000	ACCO/NYR INTACT:	2. NO ACCOM	2. NYRCIV B	
008 A/N 23 (23)	) 00010000	ACCO/NYR INTACT:	2. NO ACCOM	3. NYRCIV C	
009 A/N 24 (24)	) 00000100	ACCO/NYR INTACT:	2. NO ACCOM	4. NYRCIV D	
010 A/N 25 (25)	) 00000001	ACCO/NYR INTACT:	2. NO ACCOM	5. NYRCIV E	
CONDITIONING VARIABLE ID: BACK0049		DESCRIPTION: INTERACTION: GENDER BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES			
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: GEND/NYR		TOTAL NUMBER OF SPECIFIED CONTRASTS: 6	
NAEP ID: N/A		TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 2	
001 G/N 11 (11)	) 0101	GEND/NYR INTACT:	1. MALE	1. NYRCIV2A	
002 G/N 12 (12)	) -100	GEND/NYR INTACT:	1. MALE	2. NYRCIV2B	
003 G/N 13 (13)	) 00-1	GEND/NYR INTACT:	1. MALE	3. NYRCIV2C	
004 G/N 21 (21)	) -1-1	GEND/NYR INTACT:	2. FEMALE	1. NYRCIV2A	
005 G/N 22 (22)	) 0100	GEND/NYR INTACT:	2. FEMALE	2. NYRCIV2B	
006 G/N 23 (23)	) 0001	GEND/NYR INTACT:	2. FEMALE	3. NYRCIV2C	
CONDITIONING VARIABLE ID: BACK0050		DESCRIPTION: INTERACTION: RACE/ETHNICITY BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES			
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: RACE/NYR		TOTAL NUMBER OF SPECIFIED CONTRASTS: 12	
NAEP ID: N/A		TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 6	
001 R/N 11 (11)	) 010101010101	RACE/NYR INTACT:	1. WHI/AI/O	1. NYRCIV2A	
002 R/N 12 (12)	) -100-100-100	RACE/NYR INTACT:	1. WHI/AI/O	2. NYRCIV2B	
003 R/N 13 (13)	) 00-100-100-1	RACE/NYR INTACT:	1. WHI/AI/O	3. NYRCIV2C	
004 R/N 21 (21)	) -1-1000000000	RACE/NYR INTACT:	2. BLACK	1. NYRCIV2A	
005 R/N 22 (22)	) 010000000000	RACE/NYR INTACT:	2. BLACK	2. NYRCIV2B	
006 R/N 23 (23)	) 000100000000	RACE/NYR INTACT:	2. BLACK	3. NYRCIV2C	
007 R/N 31 (31)	) 0000-1-10000	RACE/NYR INTACT:	3. HISPANIC	1. NYRCIV2A	
008 R/N 32 (32)	) 000001000000	RACE/NYR INTACT:	3. HISPANIC	2. NYRCIV2B	
009 R/N 33 (33)	) 000000010000	RACE/NYR INTACT:	3. HISPANIC	3. NYRCIV2C	
010 R/N 41 (41)	) 00000000-1-1	RACE/NYR INTACT:	4. ASIAN	1. NYRCIV2A	
011 R/N 42 (42)	) 000000000100	RACE/NYR INTACT:	4. ASIAN	2. NYRCIV2B	
012 R/N 43 (43)	) 000000000001	RACE/NYR INTACT:	4. ASIAN	3. NYRCIV2C	
CONDITIONING VARIABLE ID: BACK0051		DESCRIPTION: INTERACTION: TYPE OF LOCALE (7 CATEGORIES) BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES			
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: TOL7/NYR		TOTAL NUMBER OF SPECIFIED CONTRASTS: 21	
NAEP ID: N/A		TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 12	
001 T/N 11 (11)	) 01010101010101010101010101010101	TOL7/NYR INTACT:	1. BIG CTY7	1. NYRCIV2A	
002 T/N 12 (12)	) -100-100-100-100-100-100	TOL7/NYR INTACT:	1. BIG CTY7	2. NYRCIV2B	
003 T/N 13 (13)	) 00-100-100-100-100-100-1	TOL7/NYR INTACT:	1. BIG CTY7	3. NYRCIV2C	
004 T/N 21 (21)	) -1-10000000000000000000000000000000	TOL7/NYR INTACT:	2. MID CTY7	1. NYRCIV2A	
005 T/N 22 (22)	) 01000000000000000000000000000000	TOL7/NYR INTACT:	2. MID CTY7	2. NYRCIV2B	
006 T/N 23 (23)	) 00010000000000000000000000000000	TOL7/NYR INTACT:	2. MID CTY7	3. NYRCIV2C	
007 T/N 31 (31)	) 0000-1-10000000000000000000000000000000	TOL7/NYR INTACT:	3. FR/LCTY7	1. NYRCIV2A	
008 T/N 32 (32)	) 00000100000000000000000000000000	TOL7/NYR INTACT:	3. FR/LCTY7	2. NYRCIV2B	
009 T/N 33 (33)	) 00000001000000000000000000000000	TOL7/NYR INTACT:	3. FR/LCTY7	3. NYRCIV2C	
010 T/N 41 (41)	) 00000000-1-10000000000000000000000000000000	TOL7/NYR INTACT:	4. FR/MCTY7	1. NYRCIV2A	
011 T/N 42 (42)	) 00000000010000000000000000000000	TOL7/NYR INTACT:	4. FR/MCTY7	2. NYRCIV2B	
012 T/N 43 (43)	) 00000000000100000000000000000000	TOL7/NYR INTACT:	4. FR/MCTY7	3. NYRCIV2C	
013 T/N 51 (51)	) 000000000000-1-1000000000	TOL7/NYR INTACT:	5. LAR TWN7	1. NYRCIV2A	
014 T/N 52 (52)	) 00000000000001000000000000000000	TOL7/NYR INTACT:	5. LAR TWN7	2. NYRCIV2B	
015 T/N 53 (53)	) 00000000000000000100000000000000	TOL7/NYR INTACT:	5. LAR TWN7	3. NYRCIV2C	
016 T/N 61 (61)	) 0000000000000000-1-10000	TOL7/NYR INTACT:	6. SML TWN7	1. NYRCIV2A	
017 T/N 62 (62)	) 0000000000000000000100000000	TOL7/NYR INTACT:	6. SML TWN7	2. NYRCIV2B	
018 T/N 63 (63)	) 00000000000000000000000000000000	TOL7/NYR INTACT:	6. SML TWN7	3. NYRCIV2C	
019 T/N 71 (71)	) 000000000000000000000000-1-1	TOL7/NYR INTACT:	7. OTHER	1. NYRCIV2A	
020 T/N 72 (72)	) 00000000000000000000000000000000	TOL7/NYR INTACT:	7. OTHER	2. NYRCIV2B	
021 T/N 73 (73)	) 00000000000000000000000000000000	TOL7/NYR INTACT:	7. OTHER	3. NYRCIV2C	
CONDITIONING VARIABLE ID: BACK0052		DESCRIPTION: INTERACTION: PARENTS' EDUCATION ALL GRADES BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES			
GRADES/ASSESSMENTS: N12		CONDITIONING VAR LABEL: PARE/NYR		TOTAL NUMBER OF SPECIFIED CONTRASTS: 15	
NAEP ID: N/A		TYPE OF CONTRAST: INTERACTION		NUMBER OF INDEPENDENT CONTRASTS: 8	
001 P/N 11 (11)	) 0101010101010101	PARE/NYR INTACT:	1. < HS	1. NYRCIV2A	
002 P/N 12 (12)	) -100-100-100-100	PARE/NYR INTACT:	1. < HS	2. NYRCIV2B	
003 P/N 13 (13)	) 00-100-100-100-1	PARE/NYR INTACT:	1. < HS	3. NYRCIV2C	
004 P/N 21 (21)	) -1-10000000000000	PARE/NYR INTACT:	2. HS GRAD	1. NYRCIV2A	
005 P/N 22 (22)	) 0100000000000000	PARE/NYR INTACT:	2. HS GRAD	2. NYRCIV2B	
006 P/N 23 (23)	) 0001000000000000	PARE/NYR INTACT:	2. HS GRAD	3. NYRCIV2C	
007 P/N 31 (31)	) 0000-1-100000000	PARE/NYR INTACT:	3. POST HS	1. NYRCIV2A	
008 P/N 32 (32)	) 0000010000000000	PARE/NYR INTACT:	3. POST HS	2. NYRCIV2B	
009 P/N 33 (33)	) 0000000100000000	PARE/NYR INTACT:	3. POST HS	3. NYRCIV2C	
010 P/N 41 (41)	) 00000000-1-10000	PARE/NYR INTACT:	4. COL GRAD	1. NYRCIV2A	
011 P/N 42 (42)	) 0000000001000000	PARE/NYR INTACT:	4. COL GRAD	2. NYRCIV2B	
012 P/N 43 (43)	) 0000000000010000	PARE/NYR INTACT:	4. COL GRAD	3. NYRCIV2C	
013 P/N 51 (51)	) 000000000000-1-1	PARE/NYR INTACT:	5. PARED-?	1. NYRCIV2A	
014 P/N 52 (52)	) 0000000000000100	PARE/NYR INTACT:	5. PARED-?	2. NYRCIV2B	
015 P/N 53 (53)	) 0000000000000001	PARE/NYR INTACT:	5. PARED-?	3. NYRCIV2C	

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:		BACK0053			
DESCRIPTION:		INTERACTION:	SCHOOL TYPE BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES		
GRADES/ASSESSMENTS:			N12		
CONDITIONING VAR LABEL:		SCHT/NYR			
NAEP ID:		N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9	
TYPE OF CONTRAST:		INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 S/N 11	(11	)	01010101	SCHT/NYR INTACT:	1. PUBLIC 1. NYRCIV2A
002 S/N 12	(12	)	-100-100	SCHT/NYR INTACT:	1. PUBLIC 2. NYRCIV2B
003 S/N 13	(13	)	00-100-1	SCHT/NYR INTACT:	1. PUBLIC 3. NYRCIV2C
004 S/N 21	(21	)	-1-10000	SCHT/NYR INTACT:	2. PRIVATE 1. NYRCIV2A
005 S/N 22	(22	)	01000000	SCHT/NYR INTACT:	2. PRIVATE 2. NYRCIV2B
006 S/N 23	(23	)	00010000	SCHT/NYR INTACT:	2. PRIVATE 3. NYRCIV2C
007 S/N 31	(31	)	0000-1-1	SCHT/NYR INTACT:	3. CATHOLIC 1. NYRCIV2A
008 S/N 32	(32	)	00000100	SCHT/NYR INTACT:	3. CATHOLIC 2. NYRCIV2B
009 S/N 33	(33	)	00000001	SCHT/NYR INTACT:	3. CATHOLIC 3. NYRCIV2C
CONDITIONING VARIABLE ID:		BACK0054			
DESCRIPTION:		INTERACTION:	ACCOMMODATED BY CIVICS COURSES TAKING IN 11TH AND 12TH GRADES		
GRADES/ASSESSMENTS:			N12		
CONDITIONING VAR LABEL:		ACCO/NYR			
NAEP ID:		N/A	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6	
TYPE OF CONTRAST:		INTERACTION	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 A/N 11	(11	)	0101	ACCO/NYR INTACT:	1. ACCOM 1. NYRCIV2A
002 A/N 12	(12	)	-100	ACCO/NYR INTACT:	1. ACCOM 2. NYRCIV2B
003 A/N 13	(13	)	00-1	ACCO/NYR INTACT:	1. ACCOM 3. NYRCIV2C
004 A/N 21	(21	)	-1-1	ACCO/NYR INTACT:	2. NO ACCOM 1. NYRCIV2A
005 A/N 22	(22	)	0100	ACCO/NYR INTACT:	2. NO ACCOM 2. NYRCIV2B
006 A/N 23	(23	)	0001	ACCO/NYR INTACT:	2. NO ACCOM 3. NYRCIV2C
CONDITIONING VARIABLE ID:		BACK0055			
DESCRIPTION:		WHICH RACE/ETHNICITY BEST DESCRIBES YOU			
GRADES/ASSESSMENTS:			N04, N08, N12		
CONDITIONING VAR LABEL:					
NAEP ID:		B003001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7	
TYPE OF CONTRAST:		CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6	
001 WHITE	(01	)	000000	WHITE	
002 BLACK	(02	)	100000	BLACK	
003 HISPANIC	(03	)	010000	HISPANIC	
004 ASIAN AM	(04	)	001000	ASIAN/PACIFIC ISLAND	
005 AMER IND	(05	)	000100	AMER IND/ALASKA NATV	
006 OTHER	(06	)	000010	OTHER	
007 B003001M	(M	)	000001	MISSING	
CONDITIONING VARIABLE ID:		BACK0056			
DESCRIPTION:		HOW LONG LIVED IN UNITED STATES			
GRADES/ASSESSMENTS:			N04, N08, N12		
CONDITIONING VAR LABEL:					
NAEP ID:		B013001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:		CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 B013001A	(01	)	0000	ALL MY LIFE	
002 B013001B	(02	)	1000	MORE THAN 5 YEARS	
003 B013001C	(03	)	0100	3-5 YEARS	
004 B013001D	(04	)	0010	LESS THAN 3 YEARS	
005 B013001M	(M	)	0001	MISSING	
CONDITIONING VARIABLE ID:		BACK0057			
DESCRIPTION:		HOW OFTEN OTHER THAN ENGLISH SPOKEN AT HOME			
GRADES/ASSESSMENTS:			N04, N08, N12		
CONDITIONING VAR LABEL:					
NAEP ID:		B013101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:		CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 B013101A	(01	)	0000	ALL OR MOST OF TIME	
002 B013101B	(02	)	1000	ABOUT HALF OF TIME	
003 B013101C	(03	)	0100	LESS THAN HALF TIME	
004 B013101D	(04	)	0010	NEVER	
005 B013101M	(M	)	0001	MISSING	
CONDITIONING VARIABLE ID:		BACK0058			
DESCRIPTION:		MOTHER GRADUATED HIGH SCHOOL			
GRADES/ASSESSMENTS:			N04, N08, N12		
CONDITIONING VAR LABEL:					
NAEP ID:		B013201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:		CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 B013201Y	(01	)	000	YES	
002 B013201N	(02	)	100	NO	
003 B013201M	(M, IDK	)	001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:		BACK0059			
DESCRIPTION:		MOTHER HAD SOME EDUCATION AFTER HIGH SCHOOL			
GRADES/ASSESSMENTS:			N04, N08, N12		
CONDITIONING VAR LABEL:					
NAEP ID:		B013301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:		CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 B013301Y	(01	)	000	YES	
002 B013301N	(02	)	100	NO	
003 B013301M	(M, IDK	)	001	MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:		BACK0060			
DESCRIPTION:		MOTHER GRADUATED COLLEGE			
GRADES/ASSESSMENTS:			N04, N08, N12		
CONDITIONING VAR LABEL:					
NAEP ID:		B013401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:		CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 B013401Y	(01	)	000	YES	
002 B013401N	(02	)	100	NO	
003 B013401M	(M, IDK	)	001	MISSING, I DON'T KNOW	

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	BACK0061		
DESCRIPTION:	FATHER GRADUATED HIGH SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013501Y (01	) 000		YES
002 B013501N (02	) 100		NO
003 B013501M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0062		
DESCRIPTION:	FATHER HAD SOME EDUCATION AFTER HIGH SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013601Y (01	) 000		YES
002 B013601N (02	) 100		NO
003 B013601M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0063		
DESCRIPTION:	FATHER GRADUATED COLLEGE		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B013701Y (01	) 000		YES
002 B013701N (02	) 100		NO
0034 B013701M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0064		
DESCRIPTION:	DOES YOUR FAMILY GET A NEWSPAPER REGULARLY		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B000901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000901Y (01	) 000		YES
002 B000901N (02	) 100		NO
003 B000901M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0065		
DESCRIPTION:	IS THERE AN ENCYCLOPEDIA IN YOUR HOME		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B000903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000903Y (01	) 000		YES
002 B000903N (02	) 100		NO
003 B000903M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0066		
DESCRIPTION:	HOW MANY BOOKS ARE IN YOUR HOME		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B013801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 B013801A (01	) 0000		0-10 (FEW)
002 B013801B (02	) 1000		11-25 (1 SHELF)
003 B013801C (03	) 0100		26-100 (1 BOOKCASE)
004 B013801D (04	) 0010		>100 (>1 BOOKCASE)
005 B013801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	BACK0067		
DESCRIPTION:	DOES YOUR FAMILY GET MAGAZINES REGULARLY		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B000905	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 B000905Y (01	) 000		YES
002 B000905N (02	) 100		NO
003 B000905M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	BACK0068		
DESCRIPTION:	TIME SPENT ON HOMEWORK EACH DAY		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B006601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B006601N (01	) 00000		DON'T USUALLY HAVE
002 B006601B (02	) 10000		HAVE BUT DON'T DO
003 B006601C (03	) 01000		1/2 HOUR OR LESS
004 B006601D (04	) 00100		1 HOUR
005 B006601E (05	) 00010		MORE THAN 1 HOUR
006 B006601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	BACK0069		
DESCRIPTION:	DAYS ABSENT FROM SCHOOL LAST MONTH		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B014001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B014001N (01	) 00000		NONE
002 B014001B (02	) 10000		1 OR 2 DAYS
003 B014001C (03	) 01000		3 OR 4 DAYS
004 B014001D (04	) 00100		5 TO 9 DAYS
005 B014001E (05	) 00010		10 OR MORE DAYS
006 B014001M (M	) 00001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:		BACK0070		
DESCRIPTION:		TIMES CHANGED SCHOOLS IN PAST TWO YEARS		
GRADES/ASSESSMENTS:		N04, N08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	B007301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 B007301N (01	) 0000		NONE	
002 B007301B (02	) 1000		1	
003 B007301C (03	) 0100		2	
004 B007301D (04	) 0010		3 OR MORE	
005 B007301M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:		BACK0071		
DESCRIPTION:		HOW OFTEN DISCUSS STUDIES AT HOME		
GRADES/ASSESSMENTS:		N04, N08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	B007401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 B007401A (01	) 0000		ALMOST EVERY DAY	
002 B007401B (02	) 1000		ONCE/TWICE A WEEK	
003 B007401C (03	) 0100		ONCE/TWICE A MONTH	
004 B007401D (04	) 0010		NEVER OR HARDLY EVER	
005 B007401M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:		BACK0072		
DESCRIPTION:		HOW OFTEN USE COMPUTER AT HOME FOR SCHOOLWORK		
GRADES/ASSESSMENTS:		N04, N08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	B014101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5	
001 B014101A (01	) 00000		NO COMPUTER AT HOME	
002 B014101B (02	) 10000		NEVER OR HARDLY EVER	
003 B014101C (03	) 01000		ONCE/TWICE A MONTH	
004 B014101D (04	) 00100		ONCE/TWICE A WEEK	
005 B014101E (05	) 00010		ALMOST EVERY DAY	
006 B014101M (M	) 00001		MISSING	
CONDITIONING VARIABLE ID:		SUBJ0001		
DESCRIPTION:		HOW HARD TRIED ON THIS SS TEST THAN ON OTHERS		
GRADES/ASSESSMENTS:		N04, N08		
CONDITIONING VAR LABEL:				
NAEP ID:	P804001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 P804001A (01	) 0000		TRIED MUCH HARDER	
002 P804001B (02	) 1000		TRIED HARDER	
003 P804001C (03	) 0100		TRIED ABOUT AS HARD	
004 P804001N (04	) 0010		TRIED NOT AS HARD	
005 P804001M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:		SUBJ0002		
DESCRIPTION:		HOW IMPORTANT TO DO WELL ON THIS SS TEST		
GRADES/ASSESSMENTS:		N04, N08		
CONDITIONING VAR LABEL:				
NAEP ID:	P804101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 P804101A (01	) 0000		VERY IMPORTANT	
002 P804101B (02	) 1000		IMPORTANT	
003 P804101C (03	) 0100		SOMEWHAT IMPORTANT	
004 P804101N (04	) 0010		NOT VERY IMPORTANT	
005 P804101M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:		SUBJ0003		
DESCRIPTION:		HOW OFTEN WRITE LONG ANSWERS ON SS TESTS		
GRADES/ASSESSMENTS:		N04, N08		
CONDITIONING VAR LABEL:				
NAEP ID:	P804201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 P804201A (01	) 0000		AT LEAST ONCE A WEEK	
002 P804201B (02	) 1000		ONCE/TWICE A MONTH	
003 P804201C (03	) 0100		ONCE/TWICE A YEAR	
004 P804201D (04	) 0010		NEVER	
005 P804201M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:		SUBJ0004		
DESCRIPTION:		MY FRIENDS MAKE FUN OF PEOPLE WHO TRY TO DO WELL		
GRADES/ASSESSMENTS:		N04, N08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	P804301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 P804301A (01	) 0000		STRONGLY AGREE	
002 P804301B (02	) 1000		AGREE	
003 P804301C (03	) 0100		DISAGREE	
004 P804301D (04	) 0010		STRONGLY DISAGREE	
005 P804301M (M	) 0001		MISSING	
CONDITIONING VARIABLE ID:		SUBJ0005		
DESCRIPTION:		I HAVE FRIENDS TO TALK TO IF NEED HELP W/SCHOOL		
GRADES/ASSESSMENTS:		N04, N08, N12		
CONDITIONING VAR LABEL:				
NAEP ID:	P804302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4	
001 P804302A (01	) 0000		STRONGLY AGREE	
002 P804302B (02	) 1000		AGREE	
003 P804302C (03	) 0100		DISAGREE	
004 P804302D (04	) 0010		STRONGLY DISAGREE	
005 P804302M (M	) 0001		MISSING	

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0006		
DESCRIPTION:	HOW OFTEN STUDY SOCIAL STUDIES IN SCHOOL		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	P803501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 P803501A (01	) 0000		ALMOST EVERY DAY
002 P803501B (02	) 1000		ONCE/TWICE A WEEK
003 P803501C (03	) 0100		ONCE/TWICE A MONTH
004 P803501D (04	) 0010		NEVER OR HARDLY EVER
005 P803501M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0007		
DESCRIPTION:	THIS YEAR-STUDY HOW OUR GOVERNMENT WORKS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803601Y (01	) 000		YES
002 P803601N (02	) 100		NO
003 P803601M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0008		
DESCRIPTION:	THIS YEAR-STUDY RULES/LAWS OF GOVERNMENT		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803602Y (01	) 000		YES
002 P803602N (02	) 100		NO
003 P803602M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0009		
DESCRIPTION:	THIS YEAR-STUDY ELECTIONS AND VOTING		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803603Y (01	) 000		YES
002 P803603N (02	) 100		NO
003 P803603M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0010		
DESCRIPTION:	THIS YEAR-STUDY THE PRESIDENT/LEADERS OF COUNTRY		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803604Y (01	) 000		YES
002 P803604N (02	) 100		NO
003 P803604M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0011		
DESCRIPTION:	THIS YEAR-STUDY YOUR COMMUNITY		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803605	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803605Y (01	) 000		YES
002 P803605N (02	) 100		NO
003 P803605M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0012		
DESCRIPTION:	THIS YEAR-STUDY RIGHTS/RESPONSIBILITIES-CITIZENS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803606	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803606Y (01	) 000		YES
002 P803606N (02	) 100		NO
003 P803606M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0013		
DESCRIPTION:	THIS YEAR-STUDY HOW PEOPLE SOLVE DISAGREEMENTS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803607	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803607Y (01	) 000		YES
002 P803607N (02	) 100		NO
003 P803607M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0014		
DESCRIPTION:	IN SOCIAL STUDIES-READ FROM TEXTBOOK		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P803701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803701Y (01	) 000		YES
002 P803701N (02	) 100		NO
003 P803701M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0015		
DESCRIPTION:	IN SOCIAL STUDIES-MEMORIZE READING MATERIAL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P803702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803702Y (01	) 000		YES
002 P803702N (02	) 100		NO
003 P803702M (M, IDK	) 001		MISSING, I DON'T KNOW

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0016			
DESCRIPTION:	IN SOCIAL STUDIES-READ EXTRA MATERIAL			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803703	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803703Y (01	) 000		YES	
002 P803703N (02	) 100		NO	
003 P803703M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0017			
DESCRIPTION:	IN SOCIAL STUDIES-FILL OUT WORKSHEETS			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803704	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803704Y (01	) 000		YES	
002 P803704N (02	) 100		NO	
003 P803704M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0018			
DESCRIPTION:	IN SOCIAL STUDIES-WRITE REPORTS			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803705	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803705Y (01	) 000		YES	
002 P803705N (02	) 100		NO	
003 P803705M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0019			
DESCRIPTION:	IN SOCIAL STUDIES-DISCUSS CURRENT EVENTS			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803706	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803706Y (01	) 000		YES	
002 P803706N (02	) 100		NO	
003 P803706M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0020			
DESCRIPTION:	IN SOCIAL STUDIES-WATCH TV, VIDEOS, FILMSTRIPS			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803707	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803707Y (01	) 000		YES	
002 P803707N (02	) 100		NO	
003 P803707M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0021			
DESCRIPTION:	IN SOCIAL STUDIES-DISCUSS TV, VIDEOS, FILMSTRIP			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803708	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803708Y (01	) 000		YES	
002 P803708N (02	) 100		NO	
003 P803708M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0022			
DESCRIPTION:	IN SOCIAL STUDIES-TAKE PART IN DEBATES/PANEL DISC			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803709	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803709Y (01	) 000		YES	
002 P803709N (02	) 100		NO	
003 P803709M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0023			
DESCRIPTION:	IN SOCIAL STUDIES-ROLE PLAYING, MOCK TRIALS			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803710	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803710Y (01	) 000		YES	
002 P803710N (02	) 100		NO	
003 P803710M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0024			
DESCRIPTION:	IN SOCIAL STUDIES-WRITE LETTER FOR COMMUNITY			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803711	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803711Y (01	) 000		YES	
002 P803711N (02	) 100		NO	
003 P803711M (M, IDK	) 001		MISSING, I DON'T KNOW	
CONDITIONING VARIABLE ID:	SUBJ0025			
DESCRIPTION:	IN SOCIAL STUDIES-HAVE VISITORS FROM COMMUNITY			
GRADES/ASSESSMENTS:	N04, N08, N12			
CONDITIONING VAR LABEL:				
NAEP ID:	P803712	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3	
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2	
001 P803712Y (01	) 000		YES	
002 P803712N (02	) 100		NO	
003 P803712M (M, IDK	) 001		MISSING, I DON'T KNOW	

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0026		
DESCRIPTION:	HOW OFTEN DO YOU HAVE SOCIAL STUDIES HOMEWORK		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	P803801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 P803801A (01	) 0000		ALMOST EVERY DAY
002 P803801B (02	) 1000		ONCE/TWICE A WEEK
003 P803801C (03	) 0100		ONCE/TWICE A MONTH
004 P803801D (04	) 0010		NEVER OR HARDLY EVER
005 P803801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0027		
DESCRIPTION:	DO YOU HAVE A CLASSROOM GOVERNMENT		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P803901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P803901Y (01	) 000		YES
002 P803901N (02	) 100		NO
003 P803901M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SCHL0001		
DESCRIPTION:	FOURTH GRADERS ASSIGNED TO CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042501Y (01	) 00		YES
002 C042501N (02	) 10		NO
003 C042501M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0002		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE READING INSTRUCTION		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042601A (01	) 00000		EVERY DAY
002 C042601B (02	) 10000		3-4 TIMES A WEEK
003 C042601C (03	) 01000		ONCE OR TWICE A WEEK
004 C042601D (04	) 00100		LESS THAN ONCE/WEEK
005 C042601N (05	) 00010		SUBJECT NOT TAUGHT
006 C042601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0003		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE WRITING INSTRUCTION		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042602A (01	) 00000		EVERY DAY
002 C042602B (02	) 10000		3-4 TIMES A WEEK
003 C042602C (03	) 01000		ONCE OR TWICE A WEEK
004 C042602D (04	) 00100		LESS THAN ONCE/WEEK
005 C042602N (05	) 00010		SUBJECT NOT TAUGHT
006 C042602M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0004		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE SOC STUDIES INSTRUCT		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042603A (01	) 00000		EVERY DAY
002 C042603B (02	) 10000		3-4 TIMES A WEEK
003 C042603C (03	) 01000		ONCE OR TWICE A WEEK
004 C042603D (04	) 00100		LESS THAN ONCE/WEEK
005 C042603N (05	) 00010		SUBJECT NOT TAUGHT
006 C042603M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0005		
DESCRIPTION:	HOW OFTEN STUDENTS RECEIVE COMPUTER USE INSTRUCT		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	C042604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C042604A (01	) 00000		EVERY DAY
002 C042604B (02	) 10000		3-4 TIMES A WEEK
003 C042604C (03	) 01000		ONCE OR TWICE A WEEK
004 C042604D (04	) 00100		LESS THAN ONCE/WEEK
005 C042604N (05	) 00010		SUBJECT NOT TAUGHT
006 C042604M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0006		
DESCRIPTION:	DOES SCHOOL USE BLOCK SCHEDULING		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 C042701Y (01	) 000		YES-ALL SUBJECTS
002 C042701Y (02	) 100		YES-SOME SUBJECTS
003 C042701N (03	) 010		NO
004 C042701M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	SCHL0007		
DESCRIPTION:	ARE COMPUTERS AVAILABLE IN ALL CLASSROOMS		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C042801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042801Y (01	) 00		YES
002 C042801N (02	) 10		NO
003 C042801M (M	) 01		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0008			
DESCRIPTION: ARE COMPUTERS AVAILABLE IN COMPUTER LAB			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042802Y (01	) 00		YES
002 C042802N (02	) 10		NO
003 C042802M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0009			
DESCRIPTION: ARE COMPUTERS AVAILABLE TO CLASSROOM WHEN NEEDED			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C042803Y (01	) 00		YES
002 C042803N (02	) 10		NO
003 C042803M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0010			
DESCRIPTION: HOW MANY COMPUTERS AVAILABLE TO STUDENTS			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C042901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 C042901N (01	) 0000000		NONE
002 C042901B (02	) 1000000		1-10
003 C042901C (03	) 0100000		11-25
004 C042901D (04	) 0010000		26-50
005 C042901E (05	) 0001000		51-75
006 C042901F (06	) 0000100		76-100
007 C042901G (07	) 0000010		MORE THAN 100
008 C042901M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID: SCHL0011			
DESCRIPTION: PRIMARY WAY LIBRARY IS STAFFED			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C036601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C036601N (01	) 0000		NO LIBRARY IN SCHOOL
002 C036601N (02	) 1000		LIBRARY-NO/VOL STAFF
003 C036601C (03	) 0100		PART-TIME STAFF
004 C036601D (04	) 0010		FULL-TIME STAFF
005 C036601M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0012			
DESCRIPTION: PARENTS PARTICIPATE-PARENT-TEACHER ORG			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043001A (01	) 00000		NOT AVAILABLE
002 C043001B (02	) 10000		0-10%
003 C043001C (03	) 01000		11-25%
004 C043001D (04	) 00100		26-50%
005 C043001E (05	) 00010		51-100%
006 C043001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0013			
DESCRIPTION: PARENTS PARTICIPATE-OPEN HOUSE			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043002A (01	) 00000		NOT AVAILABLE
002 C043002B (02	) 10000		0-10%
003 C043002C (03	) 01000		11-25%
004 C043002D (04	) 00100		26-50%
005 C043002E (05	) 00010		51-100%
006 C043002M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0014			
DESCRIPTION: PARTICIPATE-PARENT-TEACHER CONFERENCE			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043003A (01	) 00000		NOT AVAILABLE
002 C043003B (02	) 10000		0-10%
003 C043003C (03	) 01000		11-25%
004 C043003D (04	) 00100		26-50%
005 C043003E (05	) 00010		51-100%
006 C043003M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0015			
DESCRIPTION: PARENTS PARTICIPATE-SCHOOL CURRICULUM DECISIONS			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043004A (01	) 00000		NOT AVAILABLE
002 C043004B (02	) 10000		0-10%
003 C043004C (03	) 01000		11-25%
004 C043004D (04	) 00100		26-50%
005 C043004E (05	) 00010		51-100%
006 C043004M (M	) 00001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SCHL0016		
DESCRIPTION:	PARENTS PARTICIPATE-VOLUNTEER PROGRAMS		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043005	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043005A (01	) 00000		NOT AVAILABLE
002 C043005B (02	) 10000		0-10%
003 C043005C (03	) 01000		11-25%
004 C043005D (04	) 00100		26-50%
005 C043005E (05	) 00010		51-100%
006 C043005M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0017		
DESCRIPTION:	PARENTS PARTICIPATE-PARENTING-SKILLS PROGRAM		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043006	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043006A (01	) 00000		NOT AVAILABLE
002 C043006B (02	) 10000		0-10%
003 C043006C (03	) 01000		11-25%
004 C043006D (04	) 00100		26-50%
005 C043006E (05	) 00010		51-100%
006 C043006M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0018		
DESCRIPTION:	PARENTS PARTICIPATE-SCHOOL ADVISORY COMMITTEES		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043007	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043007A (01	) 00000		NOT AVAILABLE
002 C043007B (02	) 10000		0-10%
003 C043007C (03	) 01000		11-25%
004 C043007D (04	) 00100		26-50%
005 C043007E (05	) 00010		51-100%
006 C043007M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0019		
DESCRIPTION:	PARENTS PARTICIPATE-CLASSROOM ASSISTANTS		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043008	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043008A (01	) 00000		NOT AVAILABLE
002 C043008B (02	) 10000		0-10%
003 C043008C (03	) 01000		11-25%
004 C043008D (04	) 00100		26-50%
005 C043008E (05	) 00010		51-100%
006 C043008M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0020		
DESCRIPTION:	IS STUDENT ABSENTEEISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032402A (01	) 0000		SERIOUS
002 C032402B (02	) 1000		MODERATE
003 C032402C (03	) 0100		MINOR
004 C032402N (04	) 0010		NOT A PROBLEM
005 C032402M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0021		
DESCRIPTION:	IS STUDENT TARDINESS A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032401A (01	) 0000		SERIOUS
002 C032401B (02	) 1000		MODERATE
003 C032401C (03	) 0100		MINOR
004 C032401N (04	) 0010		NOT A PROBLEM
005 C032401M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0022		
DESCRIPTION:	ARE PHYSICAL CONFLICTS A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032404A (01	) 0000		SERIOUS
002 C032404B (02	) 1000		MODERATE
003 C032404C (03	) 0100		MINOR
004 C032404N (04	) 0010		NOT A PROBLEM
005 C032404M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0023		
DESCRIPTION:	ARE RACIAL/CULT. CONFLICTS A PROBLEM IN SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032407	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032407A (01	) 0000		SERIOUS
002 C032407B (02	) 1000		MODERATE
003 C032407C (03	) 0100		MINOR
004 C032407N (04	) 0010		NOT A PROBLEM
005 C032407M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0024			
DESCRIPTION: IS STUDENT HEALTH A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032408	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032408A (01	) 0000		SERIOUS
002 C032408B (02	) 1000		MODERATE
003 C032408C (03	) 0100		MINOR
004 C032408N (04	) 0010		NOT A PROBLEM
005 C032408M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0025			
DESCRIPTION: IS LACK OF PARENT INVLMNT A PROBLEM IN SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032409	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032409A (01	) 0000		SERIOUS
002 C032409B (02	) 1000		MODERATE
003 C032409C (03	) 0100		MINOR
004 C032409N (04	) 0010		NOT A PROBLEM
005 C032409M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0026			
DESCRIPTION: IS STUDENT ALCOHOL USE A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032410	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032410A (01	) 0000		SERIOUS
002 C032410B (02	) 1000		MODERATE
003 C032410C (03	) 0100		MINOR
004 C032410N (04	) 0010		NOT A PROBLEM
005 C032410M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0027			
DESCRIPTION: IS STUDENT TOBACCO USE A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032411	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032411A (01	) 0000		SERIOUS
002 C032411B (02	) 1000		MODERATE
003 C032411C (03	) 0100		MINOR
004 C032411N (04	) 0010		NOT A PROBLEM
005 C032411M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0028			
DESCRIPTION: IS STUDENT DRUG USE A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032412	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032412A (01	) 0000		SERIOUS
002 C032412B (02	) 1000		MODERATE
003 C032412C (03	) 0100		MINOR
004 C032412N (04	) 0010		NOT A PROBLEM
005 C032412M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0029			
DESCRIPTION: ARE GANG ACTIVITIES A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032413	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032413A (01	) 0000		SERIOUS
002 C032413B (02	) 1000		MODERATE
003 C032413C (03	) 0100		MINOR
004 C032413N (04	) 0010		NOT A PROBLEM
005 C032413M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0030			
DESCRIPTION: IS STUDENT MISBEHAVIOR A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C032414	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032414A (01	) 0000		SERIOUS
002 C032414B (02	) 1000		MODERATE
003 C032414C (03	) 0100		MINOR
004 C032414N (04	) 0010		NOT A PROBLEM
005 C032414M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SCHL0031			
DESCRIPTION: IS STUDENT CHEATING A PROBLEM IN YOUR SCHOOL			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043101A (01	) 0000		SERIOUS
002 C043101B (02	) 1000		MODERATE
003 C043101C (03	) 0100		MINOR
004 C043101N (04	) 0010		NOT A PROBLEM
005 C043101M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SCHL0032		
DESCRIPTION:	IS TEACHER ABSENTEEISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043102A (01	) 0000		SERIOUS
002 C043102B (02	) 1000		MODERATE
003 C043102C (03	) 0100		MINOR
004 C043102N (04	) 0010		NOT A PROBLEM
005 C043102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0033		
DESCRIPTION:	ARE PHYSICAL CONFLICTS BETWEEN STUDENTS/TEACHERS		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043103A (01	) 0000		SERIOUS
002 C043103B (02	) 1000		MODERATE
003 C043103C (03	) 0100		MINOR
004 C043103N (04	) 0010		NOT A PROBLEM
005 C043103M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0034		
DESCRIPTION:	IS VANDALISM A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043104	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043104A (01	) 0000		SERIOUS
002 C043104B (02	) 1000		MODERATE
003 C043104C (03	) 0100		MINOR
004 C043104N (04	) 0010		NOT A PROBLEM
005 C043104M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0035		
DESCRIPTION:	TEACHER MORALE		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032502A (01	) 0000		VERY POSITIVE
002 C032502B (02	) 1000		SOMEWHAT POSITIVE
003 C032502C (03	) 0100		SOMEWHAT NEGATIVE
004 C032502D (04	) 0010		VERY NEGATIVE
005 C032502M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0036		
DESCRIPTION:	STUDENT ATTITUDES TOWARD ACADEMIC ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032503A (01	) 0000		VERY POSITIVE
002 C032503B (02	) 1000		SOMEWHAT POSITIVE
003 C032503C (03	) 0100		SOMEWHAT NEGATIVE
004 C032503D (04	) 0010		VERY NEGATIVE
005 C032503M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0037		
DESCRIPTION:	PARENT SUPPORT FOR STUDENT ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032505	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032505A (01	) 0000		VERY POSITIVE
002 C032505B (02	) 1000		SOMEWHAT POSITIVE
003 C032505C (03	) 0100		SOMEWHAT NEGATIVE
004 C032505D (04	) 0010		VERY NEGATIVE
005 C032505M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0038		
DESCRIPTION:	REGARD FOR SCHOOL PROPERTY		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C032506	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C032506A (01	) 0000		VERY POSITIVE
002 C032506B (02	) 1000		SOMEWHAT POSITIVE
003 C032506C (03	) 0100		SOMEWHAT NEGATIVE
004 C032506D (04	) 0010		VERY NEGATIVE
005 C032506M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0039		
DESCRIPTION:	TEACHERS' EXPECTATIONS FOR STUDENT ACHIEVEMENT		
GRADES/ASSESSMENTS:	N04, N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043201A (01	) 0000		VERY POSITIVE
002 C043201B (02	) 1000		SOMEWHAT POSITIVE
003 C043201C (03	) 0100		SOMEWHAT NEGATIVE
004 C043201D (04	) 0010		VERY NEGATIVE
005 C043201M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0040			
DESCRIPTION: PERCENT STUDENT BODY ABSENT AVERAGE DAY			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043301A (01	) 000000		0-2%
002 C043301B (02	) 100000		3-5%
003 C043301C (03	) 010000		6-10%
004 C043301D (04	) 001000		11-25%
005 C043301E (05	) 000100		26-50%
006 C043301F (06	) 000010		MORE THAN 50%
007 C043301M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SCHL0041			
DESCRIPTION: PERCENT TEACHING STAFF ABSENT AVERAGE DAY			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043401A (01	) 000000		0-2%
002 C043401B (02	) 100000		3-5%
003 C043401C (03	) 010000		6-10%
004 C043401D (04	) 001000		11-25%
005 C043401E (05	) 000100		26-50%
006 C043401F (06	) 000010		MORE THAN 50%
007 C043401M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SCHL0042			
DESCRIPTION: ENROLLMENT LAST YEAR COMPARED TO END OF SCHOOL YR			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 C043501A (01	) 000000		98-100%
002 C043501B (02	) 100000		95-97%
003 C043501C (03	) 010000		90-94%
004 C043501D (04	) 001000		80-89%
005 C043501E (05	) 000100		70-79%
006 C043501F (06	) 000010		LESS THAN 70%
007 C043501M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SCHL0043			
DESCRIPTION: PERCENT STUDENTS HELD BACK AND REPEATING GRADE			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043601A (01	) 00000		0%
002 C043601B (02	) 10000		1-2%
003 C043601C (03	) 01000		3-5%
004 C043601D (04	) 00100		6-10%
005 C043601E (05	) 00010		MORE THAN 10%
006 C043601M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0044			
DESCRIPTION: PERCENT TEACHING STAFF LEFT BEFORE END OF YEAR			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C043701A (01	) 00000		0%
002 C043701B (02	) 10000		1-2%
003 C043701C (03	) 01000		3-5%
004 C043701D (04	) 00100		6-10%
005 C043701E (05	) 00010		MORE THAN 10%
006 C043701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: SCHL0045			
DESCRIPTION: IS SCHOOL IN NATIONAL SCHOOL LUNCH PROGRAM			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C038301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C038301Y (01	) 00		YES
002 C038301N (02	) 10		NO
003 C038301M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0046			
DESCRIPTION: PERCENT ELIGIBLE NATIONAL SCHOOL LUNCH PROGRAM			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C043801A (01	) 00000000		0%
002 C043801B (02	) 10000000		1-5%
003 C043801C (03	) 01000000		6-10%
004 C043801D (04	) 00100000		11-25%
005 C043801E (05	) 00010000		26-50%
006 C043801F (06	) 00001000		51-75%
007 C043801G (07	) 00000100		76-99%
008 C043801H (08	) 00000010		100%
009 C043801M (M	) 00000001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SCHL0047			
DESCRIPTION: DOES SCHOOL RECEIVE CHAPTER 1/TITLE I FUNDING			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C043901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C043901Y (01	) 00		YES
002 C043901N (02	) 10		NO
003 C043901M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SCHL0048			
DESCRIPTION: PERCENT STUDENTS RECEIVE CHAPTER1/TITLE I FUNDING			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044001N (01	) 00000000		NONE
002 C044001B (02	) 10000000		1-5%
003 C044001C (03	) 01000000		6-10%
004 C044001D (04	) 00100000		11-25%
005 C044001E (05	) 00010000		26-50%
006 C044001F (06	) 00001000		51-75%
007 C044001G (07	) 00000100		76-90%
008 C044001H (08	) 00000010		OVER 90%
009 C044001M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0049			
DESCRIPTION: PERCENT STUDENTS RECEIVE REMEDIAL READING INSTRUCT			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044002N (01	) 00000000		NONE
002 C044002B (02	) 10000000		1-5%
003 C044002C (03	) 01000000		6-10%
004 C044002D (04	) 00100000		11-25%
005 C044002E (05	) 00010000		26-50%
006 C044002F (06	) 00001000		51-75%
007 C044002G (07	) 00000100		76-90%
008 C044002H (08	) 00000010		OVER 90%
009 C044002M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0050			
DESCRIPTION: PERCENT STUDENTS RECEIVE REMEDIAL WRITING INSTRUCT			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044003N (01	) 00000000		NONE
002 C044003B (02	) 10000000		1-5%
003 C044003C (03	) 01000000		6-10%
004 C044003D (04	) 00100000		11-25%
005 C044003E (05	) 00010000		26-50%
006 C044003F (06	) 00001000		51-75%
007 C044003G (07	) 00000100		76-90%
008 C044003H (08	) 00000010		OVER 90%
009 C044003M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: SCHL0051			
DESCRIPTION: PERCENT STUDENTS IN GIFTED AND TALENTED PROGRAM			
GRADES/ASSESSMENTS: N04, N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	C044004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044004N (01	) 00000000		NONE
002 C044004B (02	) 10000000		1-5%
003 C044004C (03	) 01000000		6-10%
004 C044004D (04	) 00100000		11-25%
005 C044004E (05	) 00010000		26-50%
006 C044004F (06	) 00001000		51-75%
007 C044004G (07	) 00000100		76-90%
008 C044004H (08	) 00000010		OVER 90%
009 C044004M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID: BACK0073			
DESCRIPTION: HOW MUCH EDUCATION DO YOU EXPECT TO RECEIVE			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	B014201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 B014201N (01	) 000000		WILL NOT FINISH HS
002 B014201B (02	) 100000		WILL GRADUATE HS
003 B014201C (03	) 010000		SOME ED AFTER HS
004 B014201D (04	) 001000		GRADUATE COLLEGE
005 B014201E (05	) 000100		GO TO GRAD SCHOOL
006 B014201M (M, IDK	) 000001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID: SUBJ0028			
DESCRIPTION: THIS YEAR-STUDIED U. S. CONSTITUTION			
GRADES/ASSESSMENTS: N08, N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804401Y (01	) 000		YES
002 P804401N (02	) 100		NO
003 P804401M (M, IDK	) 001		MISSING, I DON'T KNOW

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SUBJ0029		
DESCRIPTION:	THIS YEAR-STUDIED CONGRESS		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804402Y (01	) 000		YES
002 P804402N (02	) 100		NO
003 P804402M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0030		
DESCRIPTION:	THIS YEAR-STUDIED PRESIDENT AND CABINET		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804403	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804403Y (01	) 000		YES
002 P804403N (02	) 100		NO
003 P804403M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0031		
DESCRIPTION:	THIS YEAR-STUDIED HOW LAWS ARE MADE		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804404Y (01	) 000		YES
002 P804404N (02	) 100		NO
003 P804404M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0032		
DESCRIPTION:	THIS YEAR-STUDIED THE COURT SYSTEM		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804405	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804405Y (01	) 000		YES
002 P804405N (02	) 100		NO
003 P804405M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0033		
DESCRIPTION:	THIS YEAR-STUDIED POLIT PARTIES, ELECTIONS, VOTE		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804406	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804406Y (01	) 000		YES
002 P804406N (02	) 100		NO
003 P804406M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0034		
DESCRIPTION:	THIS YEAR-STUDIED STATE & LOCAL GOVERNMENT		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804407	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804407Y (01	) 000		YES
002 P804407N (02	) 100		NO
003 P804407M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0035		
DESCRIPTION:	THIS YEAR-STUDIED OTHER COUNTRIES' GOVERNMENT		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804408	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804408Y (01	) 000		YES
002 P804408N (02	) 100		NO
003 P804408M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0036		
DESCRIPTION:	THIS YEAR-STUDIED INTERNATIONAL ORGANIZATIONS		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P804409	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804409Y (01	) 000		YES
002 P804409N (02	) 100		NO
003 P804409M (M, IDK	) 001		MISSING, I DON'T KNOW
CONDITIONING VARIABLE ID:	SUBJ0037		
DESCRIPTION:	HOMEWORK HOURS/WEEK-SOCIAL STUDIES CLASS		
GRADES/ASSESSMENTS:	N08		
CONDITIONING VAR LABEL:			
NAEP ID:	P804501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 P804501N (01	) 000000		DON'T USUALLY HAVE
002 P804501B (02	) 100000		HAVE BUT DON'T DO
003 P804501C (03	) 010000		LESS THAN 1 HOUR
004 P804501D (04	) 001000		1-2 HOURS
005 P804501E (05	) 000100		3-4 HOURS
006 P804501F (06	) 000010		5 HOURS OR MORE
007 P804501M (M	) 000001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SCHL0052		
DESCRIPTION:	8TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N08		
CONDITIONING VAR LABEL:			
NAEP ID:	C044401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044401Y (01	) 00		YES
002 C044401N (02	) 10		NO
003 C044401M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0053		
DESCRIPTION:	8TH GRADE ASSIGNED-HISTORY/SS BY ABILITY		
GRADES/ASSESSMENTS:	N08		
CONDITIONING VAR LABEL:			
NAEP ID:	C044402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044402Y (01	) 00		YES
002 C044402N (02	) 10		NO
003 C044402M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0054		
DESCRIPTION:	IS STUDENT DROPOUT A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043105	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043105A (01	) 0000		SERIOUS
002 C043105B (02	) 1000		MODERATE
003 C043105C (03	) 0100		MINOR
004 C043105N (04	) 0010		NOT A PROBLEM
005 C043105M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	SCHL0055		
DESCRIPTION:	IS TEEN PREGNANCY A PROBLEM IN YOUR SCHOOL		
GRADES/ASSESSMENTS:	N08, N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C043106	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 C043106A (01	) 0000		SERIOUS
002 C043106B (02	) 1000		MODERATE
003 C043106C (03	) 0100		MINOR
004 C043106N (04	) 0010		NOT A PROBLEM
005 C043106M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	BACK0074		
DESCRIPTION:	MAIN ACTIVITY YEAR FOLLOWING HIGH SCHOOL		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B005501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 B005501A (01	) 000000		WORK FULL-TIME
002 B005501B (02	) 100000		VOCA/TECH/BUSINESS
003 B005501C (03	) 010000		ATTEND 2 YR COLLEGE
004 B005501D (04	) 001000		ATTEND 4 YR COLLEGE
005 B005501E (05	) 000100		SERVE IN MILITARY
006 B005501F (06	) 000010		OTHER
007 B005501M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	BACK0075		
DESCRIPTION:	VOLUNTEER WORK IN YOUR COMMUNITY THIS YEAR		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B014301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 B014301Y (01	) 000		YES, WITH MY SCHOOL
002 B014301Y (02	) 100		YES, ON MY OWN
003 B014301N (03	) 010		NO
004 B014301M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	BACK0076		
DESCRIPTION:	HOW MANY HOURS/WEEK WORK JOB FOR PAY		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	B014401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 B014401N (01	) 000000		NONE
002 B014401B (02	) 100000		1-5 HOURS
003 B014401C (03	) 010000		6-10 HOURS
004 B014401D (04	) 001000		11-15 HOURS
005 B014401E (05	) 000100		16-20 HOURS
006 B014401F (06	) 000010		21 OR MORE HOURS
007 B014401M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	SUBJ0038		
DESCRIPTION:	HOW HARD TRIED ON THIS CIVICS TEST THAN ON OTHERS		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	P802545	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 P802545A (01	) 0000		TRIED MUCH HARDER
002 P802545B (02	) 1000		TRIED HARDER
003 P802545C (03	) 0100		TRIED ABOUT AS HARD
004 P802545N (04	) 0010		TRIED NOT AS HARD
005 P802545M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: SUBJ0039			
DESCRIPTION: HOW IMPORTANT TO DO WELL ON THIS CIVICS TEST			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P802546	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 P802546A (01	) 0000		VERY IMPORTANT
002 P802546B (02	) 1000		IMPORTANT
003 P802546C (03	) 0100		SOMEWHAT IMPORTANT
004 P802546N (04	) 0010		NOT VERY IMPORTANT
005 P802546M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0040			
DESCRIPTION: HOW OFTEN WRITE LONG ANSWERS ON CIVICS TESTS			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P802547	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 P802547A (01	) 0000		AT LEAST ONCE A WEEK
002 P802547B (02	) 1000		ONCE/TWICE A MONTH
003 P802547C (03	) 0100		ONCE/TWICE A YEAR
004 P802547D (04	) 0010		NEVER
005 P802547M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: SUBJ0041			
DESCRIPTION: GRADE 9 - STUDIED CIVICS OR GOVERNMENT			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 P804601Y (01	) 0		YES
002 P804601M (M	) 1		MISSING
CONDITIONING VARIABLE ID: SUBJ0042			
DESCRIPTION: GRADE 10 - STUDIED CIVICS OR GOVERNMENT			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 P804602Y (01	) 0		YES
002 P804602M (M	) 1		MISSING
CONDITIONING VARIABLE ID: SUBJ0043			
DESCRIPTION: GRADE 11 - STUDIED CIVICS OR GOVERNMENT			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 P804603Y (01	) 0		YES
002 P804603M (M	) 1		MISSING
CONDITIONING VARIABLE ID: SUBJ0044			
DESCRIPTION: GRADE 12 - STUDIED CIVICS OR GOVERNMENT			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 P804604Y (01	) 0		YES
002 P804604M (M	) 1		MISSING
CONDITIONING VARIABLE ID: SUBJ0045			
DESCRIPTION: HOMEWORK HOURS/WEEK CIVICS-GOVERNMENT CLASS			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 P804701N (01	) 000000		DON'T USUALLY HAVE
002 P804701B (02	) 100000		HAVE BUT DON'T DO
003 P804701C (03	) 010000		LESS THAN 1 HOUR
004 P804701D (04	) 001000		1-2 HOURS
005 P804701E (05	) 000100		3-4 HOURS
006 P804701F (06	) 000010		5 HOURS OR MORE
007 P804701M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: SUBJ0046			
DESCRIPTION: DO YOU HAVE A TEXTBOOK TO STUDY CIVICS/GOVERNMENT			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804801Y (01	) 00		YES
002 P804801N (02	) 10		NO
003 P804801M (M	) 01		MISSING
CONDITIONING VARIABLE ID: SUBJ0047			
DESCRIPTION: ENROLLED IN OR TOOK AP U.S. GOV'T & POLITICS			
GRADES/ASSESSMENTS: N12			
CONDITIONING VAR LABEL:			
NAEP ID:	P804901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 P804901Y (01	) 00		YES
002 P804901N (02	) 10		NO
003 P804901M (M	) 01		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	SCHL0056		
DESCRIPTION:	12TH GRADE ASSIGNED TO ENGLISH CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044301Y (01	) 00		YES
002 C044301N (02	) 10		NO
003 C044301M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0057		
DESCRIPTION:	12TH GR ASSIGNED- HISTORY/CIVICS/SS CLASS ABILITY		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044302	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 C044302Y (01	) 00		YES
002 C044302N (02	) 10		NO
003 C044302M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	SCHL0058		
DESCRIPTION:	PERCENT LAST YEAR'S TWELFTH-GRADE CLASS GRADUATED		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 C044101A (01	) 00000		99-100%
002 C044101B (02	) 10000		95-98%
003 C044101C (03	) 01000		90-94%
004 C044101D (04	) 00100		75-89%
005 C044101E (05	) 00010		LESS THAN 75%
006 C044101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	SCHL0059		
DESCRIPTION:	PERCENT GRADUATING CLASS-ATTEND TWO-YEAR COLLEGE		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044201N (01	) 00000000		NONE
002 C044201B (02	) 10000000		1-5%
003 C044201C (03	) 01000000		6-10%
004 C044201D (04	) 00100000		11-25%
005 C044201E (05	) 00010000		26-50%
006 C044201F (06	) 00001000		51-75%
007 C044201G (07	) 00000100		76-90%
008 C044201H (08	) 00000010		OVER 100%
009 C044201M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID:	SCHL0060		
DESCRIPTION:	PERCENT GRADUATING CLASS-ATTEND FOUR-YEAR COLLEGE		
GRADES/ASSESSMENTS:	N12		
CONDITIONING VAR LABEL:			
NAEP ID:	C044202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	9
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	8
001 C044202N (01	) 00000000		NONE
002 C044202B (02	) 10000000		1-5%
003 C044202C (03	) 01000000		6-10%
004 C044202D (04	) 00100000		11-25%
005 C044202E (05	) 00010000		26-50%
006 C044202F (06	) 00001000		51-75%
007 C044202G (07	) 00000100		76-90%
008 C044202H (08	) 00000010		OVER 100%
009 C044202M (M	) 00000001		MISSING
009 C044202M (M	) 00000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0001		
DESCRIPTION:	DO YOU TEACH READING		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067001Y (01	) 0		YES
002 T067001M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0002		
DESCRIPTION:	DO YOU TEACH WRITING		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067002	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067002Y (01	) 0		YES
002 T067002M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0003		
DESCRIPTION:	DO YOU TEACH LANGUAGE ARTS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067003	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067003Y (01	) 0		YES
002 T067003M (M	) 1		MISSING
CONDITIONING VARIABLE ID:	TCHR0004		
DESCRIPTION:	DO YOU TEACH SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T067004	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T067004Y (01	) 0		YES
002 T067004M (M	) 1		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0005			
DESCRIPTION: YEARS TOTAL TAUGHT ELEMENTARY LEVEL			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067101A (01	) 00000		2 YEARS OR LESS
002 T067101B (02	) 10000		3-5 YEARS
003 T067101C (03	) 01000		6-10 YEARS
004 T067101D (04	) 00100		11-24 YEARS
005 T067101E (05	) 00010		25 YEARS OR MORE
006 T067101M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0006			
DESCRIPTION: YEARS TOTAL TAUGHT READING			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067201A (01	) 00000		2 YEARS OR LESS
002 T067201B (02	) 10000		3-5 YEARS
003 T067201C (03	) 01000		6-10 YEARS
004 T067201D (04	) 00100		11-24 YEARS
005 T067201E (05	) 00010		25 YEARS OR MORE
006 T067201M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0007			
DESCRIPTION: YEARS TOTAL TAUGHT WRITING			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067202A (01	) 00000		2 YEARS OR LESS
002 T067202B (02	) 10000		3-5 YEARS
003 T067202C (03	) 01000		6-10 YEARS
004 T067202D (04	) 00100		11-24 YEARS
005 T067202E (05	) 00010		25 YEARS OR MORE
006 T067202M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0008			
DESCRIPTION: YEARS TOTAL TAUGHT LANGUAGE ARTS			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067203A (01	) 00000		2 YEARS OR LESS
002 T067203B (02	) 10000		3-5 YEARS
003 T067203C (03	) 01000		6-10 YEARS
004 T067203D (04	) 00100		11-24 YEARS
005 T067203E (05	) 00010		25 YEARS OR MORE
006 T067203M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0009			
DESCRIPTION: YEARS TOTAL TAUGHT HISTORY			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067204	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067204A (01	) 00000		2 YEARS OR LESS
002 T067204B (02	) 10000		3-5 YEARS
003 T067204C (03	) 01000		6-10 YEARS
004 T067204D (04	) 00100		11-24 YEARS
005 T067204E (05	) 00010		25 YEARS OR MORE
006 T067204M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0010			
DESCRIPTION: YEARS TOTAL TAUGHT SOCIAL STUDIES			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067205	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067205A (01	) 00000		2 YEARS OR LESS
002 T067205B (02	) 10000		3-5 YEARS
003 T067205C (03	) 01000		6-10 YEARS
004 T067205D (04	) 00100		11-24 YEARS
005 T067205E (05	) 00010		25 YEARS OR MORE
006 T067205M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0011			
DESCRIPTION: YEARS TOTAL TAUGHT CIVICS			
GRADES/ASSESSMENTS: N04			
CONDITIONING VAR LABEL:			
NAEP ID:	T067206	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067206A (01	) 00000		2 YEARS OR LESS
002 T067206B (02	) 10000		3-5 YEARS
003 T067206C (03	) 01000		6-10 YEARS
004 T067206D (04	) 00100		11-24 YEARS
005 T067206E (05	) 00010		25 YEARS OR MORE
006 T067206M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0012			
DESCRIPTION: MAIN ASSIGNMENT FIELD			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T067301A (01	) 0000		REGULAR CLASSROOM
002 T067301B (02	) 1000		SPECIAL CLASSROOM
003 T067301C (03	) 0100		ESL/BILINGUAL ED
004 T067301D (04	) 0010		OTHER
005 T067301M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0013		
DESCRIPTION:	TEACHING CERTIF IN THIS STATE IN MAIN FIELD		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T056201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T056201A (01	) 000000		ADVANCED PROFESSIONL
002 T056201B (02	) 100000		REGULAR/STANDARD ST
003 T056201C (03	) 010000		PROBATIONARY STATE
004 T056201D (04	) 001000		TEMPORARY/PROVISIONL
005 T056201E (05	) 000100		OTHER THAN STATE CRT
006 T056201F (06	) 000010		NOT HAVE CERT MAIN
007 T056201M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0014		
DESCRIPTION:	HIGHEST ACADEMIC DEGREE YOU HOLD		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T056301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	8
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	7
001 T056301A (01	) 0000000		HIGH SCHOOL DIPLOMA
002 T056301B (02	) 1000000		ASSOCIATES/VOCATIONL
003 T056301C (03	) 0100000		BACHELOR'S DEGREE
004 T056301D (04	) 0010000		MASTER'S DEGREE
005 T056301E (05	) 0001000		EDUCATION SPECIALIST
006 T056301F (06	) 0000100		DOCTORATE
007 T056301G (07	) 0000010		PROFESSIONAL DEGREE
008 T056301M (M	) 0000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0015		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-ELEMENTARY EDUCATION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067501A (01	) 000		MAJOR
002 T067501B (02	) 100		MINOR
003 T067501C (03	) 010		NOT IN THIS SUBJECT
004 T067501M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0016		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-SECONDARY EDUCATION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067502A (01	) 000		MAJOR
002 T067502B (02	) 100		MINOR
003 T067502C (03	) 010		NOT IN THIS SUBJECT
004 T067502M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0017		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-SPECIAL EDUCATION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067503A (01	) 000		MAJOR
002 T067503B (02	) 100		MINOR
003 T067503C (03	) 010		NOT IN THIS SUBJECT
004 T067503M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0018		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067504	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067504A (01	) 000		MAJOR
002 T067504B (02	) 100		MINOR
003 T067504C (03	) 010		NOT IN THIS SUBJECT
004 T067504M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0019		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067505	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067505A (01	) 000		MAJOR
002 T067505B (02	) 100		MINOR
003 T067505C (03	) 010		NOT IN THIS SUBJECT
004 T067505M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0020		
DESCRIPTION:	UNDERGRAD MAJOR/MINOR-CURRICULUM & SUPERVISION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067506	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067506A (01	) 000		MAJOR
002 T067506B (02	) 100		MINOR
003 T067506C (03	) 010		NOT IN THIS SUBJECT
004 T067506M (M	) 001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0021			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-COUNSELING			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067507	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067507A (01	) 000		MAJOR
002 T067507B (02	) 100		MINOR
003 T067507C (03	) 010		NOT IN THIS SUBJECT
004 T067507M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0022			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-ENGLISH			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067508	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067508A (01	) 000		MAJOR
002 T067508B (02	) 100		MINOR
003 T067508C (03	) 010		NOT IN THIS SUBJECT
004 T067508M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0023			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067509	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067509A (01	) 000		MAJOR
002 T067509B (02	) 100		MINOR
003 T067509C (03	) 010		NOT IN THIS SUBJECT
004 T067509M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0024			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-HISTORY			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067510	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067510A (01	) 000		MAJOR
002 T067510B (02	) 100		MINOR
003 T067510C (03	) 010		NOT IN THIS SUBJECT
004 T067510M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0025			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-POLITICAL SCIENCE			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067511	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067511A (01	) 000		MAJOR
002 T067511B (02	) 100		MINOR
003 T067511C (03	) 010		NOT IN THIS SUBJECT
004 T067511M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0026			
DESCRIPTION: UNDERGRAD MAJOR/MINOR-OTHER			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067512	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067512A (01	) 000		MAJOR
002 T067512B (02	) 100		MINOR
003 T067512C (03	) 010		NOT IN THIS SUBJECT
004 T067512M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0027			
DESCRIPTION: GRAD MAJOR/MINOR-ELEMENTARY EDUCATION			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067601A (01	) 000		MAJOR
002 T067601B (02	) 100		MINOR
003 T067601C (03	) 010		NOT IN THIS SUBJECT
004 T067601M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0028			
DESCRIPTION: GRAD MAJOR/MINOR-SECONDARY EDUCATION			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067602	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067602A (01	) 000		MAJOR
002 T067602B (02	) 100		MINOR
003 T067602C (03	) 010		NOT IN THIS SUBJECT
004 T067602M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0029			
DESCRIPTION: GRAD MAJOR/MINOR-SPECIAL EDUCATION			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067603	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067603A (01	) 000		MAJOR
002 T067603B (02	) 100		MINOR
003 T067603C (03	) 010		NOT IN THIS SUBJECT
004 T067603M (M	) 001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0030		
DESCRIPTION:	GRAD MAJOR/MINOR-BILINGUAL EDUCATION/ESL		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067604	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067604A (01	) 000		MAJOR
002 T067604B (02	) 100		MINOR
003 T067604C (03	) 010		NOT IN THIS SUBJECT
004 T067604M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0031		
DESCRIPTION:	GRAD MAJOR/MINOR-ADMINISTRATION & SUPERVISION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067605	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067605A (01	) 000		MAJOR
002 T067605B (02	) 100		MINOR
003 T067605C (03	) 010		NOT IN THIS SUBJECT
004 T067605M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0032		
DESCRIPTION:	GRAD MAJOR/MINOR-CURRICULUM AND INSTRUCTION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067606	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067606A (01	) 000		MAJOR
002 T067606B (02	) 100		MINOR
003 T067606C (03	) 010		NOT IN THIS SUBJECT
004 T067606M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0033		
DESCRIPTION:	GRAD MAJOR/MINOR-COUNSELING		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067607	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067607A (01	) 000		MAJOR
002 T067607B (02	) 100		MINOR
003 T067607C (03	) 010		NOT IN THIS SUBJECT
004 T067607M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0034		
DESCRIPTION:	GRAD MAJOR/MINOR-ENGLISH		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067608	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067608A (01	) 000		MAJOR
002 T067608B (02	) 100		MINOR
003 T067608C (03	) 010		NOT IN THIS SUBJECT
004 T067608M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0035		
DESCRIPTION:	GRAD MAJOR/MINOR-READING AND/OR LANGUAGE ARTS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067609	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067609A (01	) 000		MAJOR
002 T067609B (02	) 100		MINOR
003 T067609C (03	) 010		NOT IN THIS SUBJECT
004 T067609M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0036		
DESCRIPTION:	GRAD MAJOR/MINOR-HISTORY		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067610	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067610A (01	) 000		MAJOR
002 T067610B (02	) 100		MINOR
003 T067610C (03	) 010		NOT IN THIS SUBJECT
004 T067610M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0037		
DESCRIPTION:	GRAD MAJOR/MINOR-POLITICAL SCIENCE		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067611	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067611A (01	) 000		MAJOR
002 T067611B (02	) 100		MINOR
003 T067611C (03	) 010		NOT IN THIS SUBJECT
004 T067611M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0038		
DESCRIPTION:	GRAD MAJOR/MINOR-OTHER		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T067612	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067612A (01	) 000		MAJOR
002 T067612B (02	) 100		MINOR
003 T067612C (03	) 010		NOT IN THIS SUBJECT
004 T067612M (M	) 001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0039			
DESCRIPTION: LAST 12 MOS, PROF DEV-READING AND WRITING			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067701A (01	) 00000		NONE
002 T067701B (02	) 10000		LESS THAN 6 HOURS
003 T067701C (03	) 01000		6 - 15 HOURS
004 T067701D (04	) 00100		16 - 35 HOURS
005 T067701E (05	) 00010		MORE THAN 35 HOURS
006 T067701M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0040			
DESCRIPTION: LAST 12 MOS, PROF DEV-SOCIAL STUDIES			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067702	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T067702A (01	) 00000		NONE
002 T067702B (02	) 10000		LESS THAN 6 HOURS
003 T067702C (03	) 01000		6 - 15 HOURS
004 T067702D (04	) 00100		16 - 35 HOURS
005 T067702E (05	) 00010		MORE THAN 35 HOURS
006 T067702M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0041			
DESCRIPTION: PREPARED IN THE USE OF TELECOMMUNICATIONS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067801A (01	) 000		WELL PREPARED
002 T067801B (02	) 100		MODERATELY PREPARED
003 T067801C (03	) 010		NOT WELL PREPARED
004 T067801M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0042			
DESCRIPTION: PREPARED IN THE USE OF COMPUTERS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067802	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067802A (01	) 000		WELL PREPARED
002 T067802B (02	) 100		MODERATELY PREPARED
003 T067802C (03	) 010		NOT WELL PREPARED
004 T067802M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0043			
DESCRIPTION: PREPARED IN COOPERATIVE GROUP INSTRUCTION			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067803	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067803A (01	) 000		WELL PREPARED
002 T067803B (02	) 100		MODERATELY PREPARED
003 T067803C (03	) 010		NOT WELL PREPARED
004 T067803M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0044			
DESCRIPTION: PREPARED IN TEACHING STUDENTS-DIFFERENT CULTURES			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067804	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067804A (01	) 000		WELL PREPARED
002 T067804B (02	) 100		MODERATELY PREPARED
003 T067804C (03	) 010		NOT WELL PREPARED
004 T067804M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0045			
DESCRIPTION: PREPARED IN TEACHING STUDENTS WHO ARE LEP			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067805	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067805A (01	) 000		WELL PREPARED
002 T067805B (02	) 100		MODERATELY PREPARED
003 T067805C (03	) 010		NOT WELL PREPARED
004 T067805M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0046			
DESCRIPTION: PREPARED IN TEACHING STUDENTS WITH DISABILITIES			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067806	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067806A (01	) 000		WELL PREPARED
002 T067806B (02	) 100		MODERATELY PREPARED
003 T067806C (03	) 010		NOT WELL PREPARED
004 T067806M (M	) 001		MISSING
CONDITIONING VARIABLE ID: TCHR0047			
DESCRIPTION: PREPARED IN CLASSROOM MANAGEMENT AND ORGANIZATION			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T067807	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T067807A (01	) 000		WELL PREPARED
002 T067807B (02	) 100		MODERATELY PREPARED
003 T067807C (03	) 010		NOT WELL PREPARED
004 T067807M (M	) 001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0048		
DESCRIPTION:	AVAILABILITY OF RESOURCES		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T041201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T041201A (01	) 0000		GET ALL RESOURCES
002 T041201B (02	) 1000		GET MOST RESOURCES
003 T041201C (03	) 0100		GET SOME RESOURCES
004 T041201D (04	) 0010		DON'T GET RESOURCES
005 T041201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0049		
DESCRIPTION:	PREPARED IN SOCIAL STUDIES INSTRUCTION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070401A (01	) 000		WELL PREPARED
002 T070401B (02	) 100		MODERATELY PREPARED
003 T070401C (03	) 010		NOT WELL PREPARED
004 T070401M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0050		
DESCRIPTION:	PREPARED IN PUBLIC SERVICE OPPORTUNITIES		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070402A (01	) 000		WELL PREPARED
002 T070402B (02	) 100		MODERATELY PREPARED
003 T070402C (03	) 010		NOT WELL PREPARED
004 T070402M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0051		
DESCRIPTION:	PREPARED IN INSTRUCTIONAL MATERIALS IN SOC STUDIES		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070403	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070403A (01	) 000		WELL PREPARED
002 T070403B (02	) 100		MODERATELY PREPARED
003 T070403C (03	) 010		NOT WELL PREPARED
004 T070403M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0052		
DESCRIPTION:	PREPARED IN USE OF COMMUNITY RESOURCES IN INSTRUC		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070404A (01	) 000		WELL PREPARED
002 T070404B (02	) 100		MODERATELY PREPARED
003 T070404C (03	) 010		NOT WELL PREPARED
004 T070404M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0053		
DESCRIPTION:	PREPARED IN CLASSROOM CLIMATE AND GOVERNANCE		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070405	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070405A (01	) 000		WELL PREPARED
002 T070405B (02	) 100		MODERATELY PREPARED
003 T070405C (03	) 010		NOT WELL PREPARED
004 T070405M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0054		
DESCRIPTION:	PREPARED IN USING NATL STANDARDS FOR CIVICS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070406	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070406A (01	) 000		WELL PREPARED
002 T070406B (02	) 100		MODERATELY PREPARED
003 T070406C (03	) 010		NOT WELL PREPARED
004 T070406M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0055		
DESCRIPTION:	PREPARED IN USING SOFTWARE FOR SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070407	TOTAL NUMBER OF SPECIFIED CONTRASTS:	4
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	3
001 T070407A (01	) 000		WELL PREPARED
002 T070407B (02	) 100		MODERATELY PREPARED
003 T070407C (03	) 010		NOT WELL PREPARED
004 T070407M (M	) 001		MISSING
CONDITIONING VARIABLE ID:	TCHR0056		
DESCRIPTION:	WHAT IS YOUR AVERAGE SOCIAL STUDIES CLASS SIZE		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T070501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T070501A (01	) 00000		1-20 STUDENTS
002 T070501B (02	) 10000		21-25 STUDENTS
003 T070501C (03	) 01000		26-30 STUDENTS
004 T070501D (04	) 00100		31-35 STUDENTS
005 T070501E (05	) 00010		36 OR MORE STUDENTS
006 T070501M (M	) 00001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0057		
DESCRIPTION:	ARE STUDENTS ASSIGNED TO THIS CLASS BY ABILITY		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070601	TOTAL NUMBER OF SPECIFIED CONTRASTS:	3
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	2
001 T070601Y (01	) 00		YES
002 T070601N (02	) 10		NO
003 T070601M (M	) 01		MISSING
CONDITIONING VARIABLE ID:	TCHR0058		
DESCRIPTION:	WHAT IS THE ABILITY LEVEL OF THE STUDENTS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070701	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070701A (01	) 0000		PRIMARILY HIGH
002 T070701B (02	) 1000		PRIMARILY AVERAGE
003 T070701C (03	) 0100		PRIMARILY LOW
004 T070701D (04	) 0010		WIDELY MIXED
005 T070701M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0059		
DESCRIPTION:	CLASS TIME PER DAY-SOCIAL STUDIES INSTRUCTION		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070801	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070801A (01	) 0000		LESS THAN 30 MINUTES
002 T070801B (02	) 1000		30-44 MINUTES
003 T070801C (03	) 0100		45-60 MINUTES
004 T070801D (04	) 0010		MORE THAN 60 MINUTES
005 T070801M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0060		
DESCRIPTION:	HOW OFTEN USE SOCIAL STUDIES TEXTBOOK		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070901	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070901A (01	) 0000		ALMOST EVERY DAY
002 T070901B (02	) 1000		ONCE/TWICE A WEEK
003 T070901C (03	) 0100		ONCE/TWICE A MONTH
004 T070901D (04	) 0010		NEVER OR HARDLY EVER
005 T070901M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0061		
DESCRIPTION:	HOW OFTEN USE BOOKS, NEWSPAPER, MAGAZINES		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070902	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070902A (01	) 0000		ALMOST EVERY DAY
002 T070902B (02	) 1000		ONCE/TWICE A WEEK
003 T070902C (03	) 0100		ONCE/TWICE A MONTH
004 T070902D (04	) 0010		NEVER OR HARDLY EVER
005 T070902M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0062		
DESCRIPTION:	HOW OFTEN USE PRIMARY DOCUMENTS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070903	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070903A (01	) 0000		ALMOST EVERY DAY
002 T070903B (02	) 1000		ONCE/TWICE A WEEK
003 T070903C (03	) 0100		ONCE/TWICE A MONTH
004 T070903D (04	) 0010		NEVER OR HARDLY EVER
005 T070903M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0063		
DESCRIPTION:	HOW OFTEN USE QUANTITATIVE DATA-CHARTS, GRAPHS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070904	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070904A (01	) 0000		ALMOST EVERY DAY
002 T070904B (02	) 1000		ONCE/TWICE A WEEK
003 T070904C (03	) 0100		ONCE/TWICE A MONTH
004 T070904D (04	) 0010		NEVER OR HARDLY EVER
005 T070904M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0064		
DESCRIPTION:	HOW OFTEN USE COMPUTER SOFTWARE		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070905	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070905A (01	) 0000		ALMOST EVERY DAY
002 T070905B (02	) 1000		ONCE/TWICE A WEEK
003 T070905C (03	) 0100		ONCE/TWICE A MONTH
004 T070905D (04	) 0010		NEVER OR HARDLY EVER
005 T070905M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0065		
DESCRIPTION:	HOW OFTEN USE FILMS, VIDEOS, FILMSTRIPS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070906	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070906A (01	) 0000		ALMOST EVERY DAY
002 T070906B (02	) 1000		ONCE/TWICE A WEEK
003 T070906C (03	) 0100		ONCE/TWICE A MONTH
004 T070906D (04	) 0010		NEVER OR HARDLY EVER
005 T070906M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0066		
DESCRIPTION:	HOW OFTEN USE MATERIALS FROM OTHER SUBJECT AREAS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T070907	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T070907A (01	) 0000		ALMOST EVERY DAY
002 T070907B (02	) 1000		ONCE/TWICE A WEEK
003 T070907C (03	) 0100		ONCE/TWICE A MONTH
004 T070907D (04	) 0010		NEVER OR HARDLY EVER
005 T070907M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0067		
DESCRIPTION:	AVAILABILITY OF COMPUTERS IN SOCIAL STUDIES CLASS		
GRADES/ASSESSMENTS:	N04		
CONDITIONING VAR LABEL:			
NAEP ID:	T071001	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T071001A (01	) 00000		NOT AVAILABLE
002 T071001B (02	) 10000		LIMITED ACCESS
003 T071001C (03	) 01000		LAB OR LIBRARY
004 T071001D (04	) 00100		ONE IN CLASSROOM
005 T071001E (05	) 00010		SEVERAL IN CLASSROOM
006 T071001M (M	) 00001		MISSING
CONDITIONING VARIABLE ID:	TCHR0068		
DESCRIPTION:	HOW OFTEN STUDENTS COMPLETE A WORKSHEET		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071101	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071101A (01	) 0000		ALMOST EVERY DAY
002 T071101B (02	) 1000		ONCE/TWICE A WEEK
003 T071101C (03	) 0100		ONCE/TWICE A MONTH
004 T071101D (04	) 0010		NEVER OR HARDLY EVER
005 T071101M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0069		
DESCRIPTION:	HOW OFTEN STUDENTS READ EXTRA MATERIAL		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071102	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071102A (01	) 0000		ALMOST EVERY DAY
002 T071102B (02	) 1000		ONCE/TWICE A WEEK
003 T071102C (03	) 0100		ONCE/TWICE A MONTH
004 T071102D (04	) 0010		NEVER OR HARDLY EVER
005 T071102M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0070		
DESCRIPTION:	HOW OFTEN GIVE LECTURE ABOUT SOCIAL STUDIES		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071103	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071103A (01	) 0000		ALMOST EVERY DAY
002 T071103B (02	) 1000		ONCE/TWICE A WEEK
003 T071103C (03	) 0100		ONCE/TWICE A MONTH
004 T071103D (04	) 0010		NEVER OR HARDLY EVER
005 T071103M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0071		
DESCRIPTION:	HOW OFTEN STUDENTS DO GROUP ACTIVITY OR PROJECT		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071104	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071104A (01	) 0000		ALMOST EVERY DAY
002 T071104B (02	) 1000		ONCE/TWICE A WEEK
003 T071104C (03	) 0100		ONCE/TWICE A MONTH
004 T071104D (04	) 0010		NEVER OR HARDLY EVER
005 T071104M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0072		
DESCRIPTION:	HOW OFTEN STUDENTS WRITE THREE OR MORE PAGE REPORT		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071105	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071105A (01	) 0000		ALMOST EVERY DAY
002 T071105B (02	) 1000		ONCE/TWICE A WEEK
003 T071105C (03	) 0100		ONCE/TWICE A MONTH
004 T071105D (04	) 0010		NEVER OR HARDLY EVER
005 T071105M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0073			
DESCRIPTION: HOW OFTEN STUDENTS WATCH TELEVISION, VIDEOS, FILMS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071106	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071106A (01	) 0000		ALMOST EVERY DAY
002 T071106B (02	) 1000		ONCE/TWICE A WEEK
003 T071106C (03	) 0100		ONCE/TWICE A MONTH
004 T071106D (04	) 0010		NEVER OR HARDLY EVER
005 T071106M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0074			
DESCRIPTION: HOW OFTEN STUDENTS PARTICIPATE-DEBATES			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071107	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071107A (01	) 0000		ALMOST EVERY DAY
002 T071107B (02	) 1000		ONCE/TWICE A WEEK
003 T071107C (03	) 0100		ONCE/TWICE A MONTH
004 T071107D (04	) 0010		NEVER OR HARDLY EVER
005 T071107M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0075			
DESCRIPTION: HOW OFTEN STUDENTS PARTICIPATE-MOCK TRIALS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071108	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071108A (01	) 0000		ALMOST EVERY DAY
002 T071108B (02	) 1000		ONCE/TWICE A WEEK
003 T071108C (03	) 0100		ONCE/TWICE A MONTH
004 T071108D (04	) 0010		NEVER OR HARDLY EVER
005 T071108M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0076			
DESCRIPTION: HOW OFTEN STUDENTS WRITE LETTERS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071109	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071109A (01	) 0000		ALMOST EVERY DAY
002 T071109B (02	) 1000		ONCE/TWICE A WEEK
003 T071109C (03	) 0100		ONCE/TWICE A MONTH
004 T071109D (04	) 0010		NEVER OR HARDLY EVER
005 T071109M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0077			
DESCRIPTION: HOW OFTEN VISITORS MEET/DISCUSS IMPORTANT EVENTS			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071110	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071110A (01	) 0000		ALMOST EVERY DAY
002 T071110B (02	) 1000		ONCE/TWICE A WEEK
003 T071110C (03	) 0100		ONCE/TWICE A MONTH
004 T071110D (04	) 0010		NEVER OR HARDLY EVER
005 T071110M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0078			
DESCRIPTION: HOW OFTEN STUDENTS VISIT GOVERNMENT/COMMUNITY			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071111	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071111A (01	) 0000		ALMOST EVERY DAY
002 T071111B (02	) 1000		ONCE/TWICE A WEEK
003 T071111C (03	) 0100		ONCE/TWICE A MONTH
004 T071111D (04	) 0010		NEVER OR HARDLY EVER
005 T071111M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0079			
DESCRIPTION: HOW OFTEN STUDENTS PARTICIPATE-VOLUNTEER PROJ/SERV			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071112	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071112A (01	) 0000		ALMOST EVERY DAY
002 T071112B (02	) 1000		ONCE/TWICE A WEEK
003 T071112C (03	) 0100		ONCE/TWICE A MONTH
004 T071112D (04	) 0010		NEVER OR HARDLY EVER
005 T071112M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0080			
DESCRIPTION: HOW OFTEN STUDENTS ACCESS INTERNET-CLASSROOM			
GRADES/ASSESSMENTS: N04, N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071113	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071113A (01	) 0000		ALMOST EVERY DAY
002 T071113B (02	) 1000		ONCE/TWICE A WEEK
003 T071113C (03	) 0100		ONCE/TWICE A MONTH
004 T071113D (04	) 0010		NEVER OR HARDLY EVER
005 T071113M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0081		
DESCRIPTION:	HOW OFTEN STUDENTS DISCUSS CURRENT EVENTS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071114	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071114A (01	) 0000		ALMOST EVERY DAY
002 T071114B (02	) 1000		ONCE/TWICE A WEEK
003 T071114C (03	) 0100		ONCE/TWICE A MONTH
004 T071114D (04	) 0010		NEVER OR HARDLY EVER
005 T071114M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0082		
DESCRIPTION:	HOW OFTEN STUDENTS USE STUDENT GOVERNMENT		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071115	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071115A (01	) 0000		ALMOST EVERY DAY
002 T071115B (02	) 1000		ONCE/TWICE A WEEK
003 T071115C (03	) 0100		ONCE/TWICE A MONTH
004 T071115D (04	) 0010		NEVER OR HARDLY EVER
005 T071115M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0083		
DESCRIPTION:	HOW OFTEN GIVE STUDENTS SOCIAL STUDIES HOMEWORK		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071116	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071116A (01	) 0000		ALMOST EVERY DAY
002 T071116B (02	) 1000		ONCE/TWICE A WEEK
003 T071116C (03	) 0100		ONCE/TWICE A MONTH
004 T071116D (04	) 0010		NEVER OR HARDLY EVER
005 T071116M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0084		
DESCRIPTION:	HOW OFTEN USE MULTIPLE-CHOICE, TRUE/FALSE, MATCHING		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071201	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071201A (01	) 0000		ONCE/TWICE A WEEK
002 T071201B (02	) 1000		ONCE/TWICE A MONTH
003 T071201C (03	) 0100		ONCE/TWICE A YEAR
004 T071201D (04	) 0010		NEVER OR HARDLY EVER
005 T071201M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0085		
DESCRIPTION:	HOW OFTEN USE FILL-IN-THE BLANK QUESTIONS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071202	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071202A (01	) 0000		ONCE/TWICE A WEEK
002 T071202B (02	) 1000		ONCE/TWICE A MONTH
003 T071202C (03	) 0100		ONCE/TWICE A YEAR
004 T071202D (04	) 0010		NEVER OR HARDLY EVER
005 T071202M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0086		
DESCRIPTION:	HOW OFTEN USE PARAGRAPH WRITTEN RESPONSE		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071203	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071203A (01	) 0000		ONCE/TWICE A WEEK
002 T071203B (02	) 1000		ONCE/TWICE A MONTH
003 T071203C (03	) 0100		ONCE/TWICE A YEAR
004 T071203D (04	) 0010		NEVER OR HARDLY EVER
005 T071203M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0087		
DESCRIPTION:	HOW OFTEN USE INDIVIDUAL/GROUP PROJECTS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071204	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071204A (01	) 0000		ONCE/TWICE A WEEK
002 T071204B (02	) 1000		ONCE/TWICE A MONTH
003 T071204C (03	) 0100		ONCE/TWICE A YEAR
004 T071204D (04	) 0010		NEVER OR HARDLY EVER
005 T071204M (M	) 0001		MISSING
CONDITIONING VARIABLE ID:	TCHR0088		
DESCRIPTION:	HOW OFTEN USE ESSAYS, PAPERS ASSIGNED TOPICS		
GRADES/ASSESSMENTS:	N04, N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071205	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071205A (01	) 0000		ONCE/TWICE A WEEK
002 T071205B (02	) 1000		ONCE/TWICE A MONTH
003 T071205C (03	) 0100		ONCE/TWICE A YEAR
004 T071205D (04	) 0010		NEVER OR HARDLY EVER
005 T071205M (M	) 0001		MISSING
005 T071205M (M	) 0001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID: TCHR0089			
DESCRIPTION: AVAILABILITY OF COMPUTERS IN SOCIAL STUDIES CLASS			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	5
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	4
001 T071301A (01	) 0000		NOT AVAILABLE
002 T071301B (02	) 1000		LIMITED ACCESS
003 T071301C (03	) 0100		READILY AVAILABLE
004 T071301D (04	) 0010		AVAILABLE ALL CLASS
005 T071301M (M	) 0001		MISSING
CONDITIONING VARIABLE ID: TCHR0090			
DESCRIPTION: DO YOU TEACH HISTORY			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071401	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071401Y (01	) 0		YES
002 T071401M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0091			
DESCRIPTION: DO YOU TEACH SOCIAL STUDIES			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071402	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071402Y (01	) 0		YES
002 T071402M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0092			
DESCRIPTION: DO YOU TEACH GOVERNMENT/CIVICS			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071403	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071403Y (01	) 0		YES
002 T071403M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0093			
DESCRIPTION: DO YOU TEACH-OTHER			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071404	TOTAL NUMBER OF SPECIFIED CONTRASTS:	2
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	1
001 T071404Y (01	) 0		YES
002 T071404M (M	) 1		MISSING
CONDITIONING VARIABLE ID: TCHR0094			
DESCRIPTION: YEARS TOTAL TAUGHT ELEMENTARY OR SECONDARY			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T040301	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 T040301A (01	) 00000		2 YEARS OR LESS
002 T040301B (02	) 10000		3-5 YEARS
003 T040301C (03	) 01000		6-10 YEARS
004 T040301D (04	) 00100		11-24 YEARS
005 T040301E (05	) 00010		25 YEARS OR MORE
006 T040301M (M	) 00001		MISSING
CONDITIONING VARIABLE ID: TCHR0095			
DESCRIPTION: YEARS TOTAL TAUGHT HISTORY			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071501	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071501A (01	) 000000		NOT TAUGHT
002 T071501B (02	) 100000		2 YEARS OR LESS
003 T071501C (03	) 010000		3-5 YEARS
004 T071501D (04	) 001000		6-10 YEARS
005 T071501E (05	) 000100		11-24 YEARS
006 T071501F (06	) 000010		25 YEARS OR MORE
007 T071501M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0096			
DESCRIPTION: YEARS TOTAL TAUGHT SOCIAL STUDIES			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071502	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071502A (01	) 000000		NOT TAUGHT
002 T071502B (02	) 100000		2 YEARS OR LESS
003 T071502C (03	) 010000		3-5 YEARS
004 T071502D (04	) 001000		6-10 YEARS
005 T071502E (05	) 000100		11-24 YEARS
006 T071502F (06	) 000010		25 YEARS OR MORE
007 T071502M (M	) 000001		MISSING
CONDITIONING VARIABLE ID: TCHR0097			
DESCRIPTION: YEARS TOTAL TAUGHT GOVERNMENT/CIVICS			
GRADES/ASSESSMENTS: N08			
CONDITIONING VAR LABEL:			
NAEP ID:	T071503	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071503A (01	) 000000		NOT TAUGHT
002 T071503B (02	) 100000		2 YEARS OR LESS
003 T071503C (03	) 010000		3-5 YEARS
004 T071503D (04	) 001000		6-10 YEARS
005 T071503E (05	) 000100		11-24 YEARS
006 T071503F (06	) 000010		25 YEARS OR MORE
007 T071503M (M	) 000001		MISSING

Table F-7 (continued)
1998 Civics Conditioning Variable Specifications

CONDITIONING VARIABLE ID:	TCHR0098		
DESCRIPTION:	YEARS TOTAL TAUGHT-OTHER		
GRADES/ASSESSMENTS:	N08		
CONDITIONING VAR LABEL:			
NAEP ID:	T071504	TOTAL NUMBER OF SPECIFIED CONTRASTS:	7
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	6
001 T071504A (01	) 000000		NOT TAUGHT
002 T071504B (02	) 100000		2 YEARS OR LESS
003 T071504C (03	) 010000		3-5 YEARS
004 T071504D (04	) 001000		6-10 YEARS
005 T071504E (05	) 000100		11-24 YEARS
006 T071504F (06	) 000010		25 YEARS OR MORE
007 T071504M (M	) 000001		MISSING
CONDITIONING VARIABLE ID:	TCHR0099		
DESCRIPTION:	WHAT IS THE NUMBER OF STUDENTS IN EACH CLASS? (8TH GRADE)		
GRADES/ASSESSMENTS:	N08		
CONDITIONING VAR LABEL:	CLASIZ8		
NAEP ID:	TCSIZE	TOTAL NUMBER OF SPECIFIED CONTRASTS:	6
TYPE OF CONTRAST:	CLASS	NUMBER OF INDEPENDENT CONTRASTS:	5
001 CLASIZ-1 (1	) 00000		AVERAGE CLASS SIZE: 1-20 STUDENTS
002 CLASIZ-2 (2	) 10000		AVERAGE CLASS SIZE: 21-25 STUDENTS
003 CLASIZ-3 (3	) 01000		AVERAGE CLASS SIZE: 26-30 STUDENTS
004 CLASIZ-4 (4	) 00100		AVERAGE CLASS SIZE: 31-35 STUDENTS
005 CLASIZ-5 (5	) 00010		AVERAGE CLASS SIZE: 36 OR MORE STUDENTS
006 CLASIZ-? (M	) 00001		AVERAGE CLASS SIZE: MISSING, DOES NOT APPLY

Table F-8

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.92628	G/T 25	0.94790	P/T 33	0.74133
BLACK	0.95307	G/T 26	0.72301	P/T 34	0.73856
HISPANIC	0.95189	G/T 27	0.70027	P/T 35	0.73890
ASIAN	0.91279	G/P 22	0.94475	P/T 36	0.81032
MEXICAN	0.91130	G/P 23	0.93965	P/T 37	0.95000
PUER RIC	0.96254	G/P 24	0.74374	P/T 41	0.75452
CUBN,OTH	0.96397	G/P 25	0.93859	P/T 42	0.74692
HISP-?	0.80692	G/S 22	0.93007	P/T 43	0.83855
MID CTY7	0.93456	G/S 23	0.90185	P/T 44	0.87364
FR/LCTY7	0.93130	R/T 24	0.90053	P/T 45	0.87675
FR/MCTY7	0.93924	R/T 25	0.91144	P/T 46	0.96140
LAR TWN7	0.90909	R/T 26	0.92731	P/T 47	0.84205
SML TWN7	0.94034	R/T 27	0.95530	P/T 51	0.82294
OTHER	0.92528	R/T 31	0.91207	P/T 52	0.73076
HS GRAD	0.94413	R/T 32	0.93387	P/T 53	0.75765
POST HS	0.94449	R/T 33	0.90364	P/T 54	0.78923
COL GRAD	0.94563	R/T 34	0.89985	P/T 55	0.96239
PARED-?	0.94188	R/T 35	0.91026	P/T 56	0.77793
S EAST	0.87014	R/T 36	0.93874	P/T 57	0.75745
CENTRAL	0.86238	R/T 37	0.92089	T/S 41	0.93907
WEST	0.88336	R/T 41	0.91700	T/S 42	0.93488
PRIVATE	0.90879	R/T 42	0.92950	T/S 43	0.94698
CATHOLIC	0.92133	R/T 43	0.91914	T/S 51	0.92564
BLACK	0.85377	R/T 44	0.93379	T/S 52	0.94699
HISPANIC	0.76016	R/T 45	0.92807	T/S 53	0.95233
ASIAN	0.74882	R/T 46	0.94438	T/S 61	0.96863
IEP-NO	0.90776	R/T 47	0.95159	T/S 62	0.95136
LEP-NO	0.81781	R/P 24	0.90676	T/S 63	0.94575
TITLE-N	0.77439	R/P 25	0.90483	T/S 71	0.94858
RED PRIC	0.92181	R/P 31	0.91488	P/S 32	0.95315
FREE	0.75380	R/P 32	0.89881	P/S 33	0.92456
INFO N/A	0.85570	R/P 33	0.90874	P/S 41	0.95004
SCH/REF	0.86186	R/P 34	0.89696	P/S 42	0.92638
SCH/NP	0.90161	R/P 35	0.89304	P/S 43	0.92637
TVLIN-0	0.98175	R/P 41	0.89477	P/S 51	0.91069
TV-QUAD	0.98167	R/P 42	0.96782	P/S 52	0.94580
HW-NO	0.98390	R/P 43	0.96287	P/S 53	0.92271
HW-YES	0.98520	R/P 44	0.95399	SAMP S3	0.83925
HWLIN-0	0.98273	R/P 45	0.95120	S/R 22	0.88816
HWQUAD-0	0.97923	R/S 31	0.95044	S/R 23	0.89965
HITEM=3	0.94575	R/S 32	0.96000	S/R 24	0.96330
HITEM=4	0.97449	R/S 33	0.96247	BLACK	0.92332
PGS>5	0.82955	R/S 41	0.94798	HISPANIC	0.82936
PGS>10	0.82962	R/S 42	0.95501	ASIAN AM	0.86267
G/R 22	0.91021	R/S 43	0.95510	AMER IND	0.97386
G/R 23	0.90480	P/T 25	0.72351	OTHER	0.95438
G/R 24	0.96274	P/T 26	0.71971	B003001M	0.75316
G/T 22	0.71298	P/T 27	0.76992		
G/T 23	0.72771	P/T 31	0.93957		
G/T 24	0.74975	P/T 32	0.72892		

Table F-8 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
B014601B	0.95658	RM00501B	0.85790	R811006M	0.79032
B014601C	0.95758	RM00501C	0.87746	R811007B	0.88462
B014601M	0.78688	RM00501D	0.87721	R811007C	0.91932
B003201B	0.84763	RM00501M	0.80797	R811007D	0.92341
B003201C	0.84646	R830501B	0.95123	R811007M	0.79994
B003201M	0.79767	R830501C	0.93966	R811009B	0.89117
B013201N	0.74480	R830501D	0.93502	R811009C	0.88895
B013201M	0.72712	R830501M	0.82531	R811009D	0.87111
B013301N	*0.82246	R830502B	0.84817	R811009M	0.74680
B013301M	0.78303	R830502C	0.89197	R811002B	0.92925
B013401N	0.86286	R830502D	0.90167	R811002C	0.94188
B013401M	0.84829	R830502M	0.83029	R811002D	0.92611
B013501N	0.77472	R810801B	0.95270	R811002M	0.76614
B013501M	0.74417	R810801C	0.95963	R811004B	0.91914
B013601N	0.78895	R810801D	0.94975	R811004C	0.91339
B013601M	0.78177	R810801M	0.86397	R811004D	0.91452
B013701N	0.83211	R810201B	0.84563	R811004M	0.79021
B013701M	0.83416	R810201C	0.85108	R818101B	0.91092
B000901N	0.88857	R810201D	0.93135	R818101C	0.92504
B000901M	0.88612	R810201M	0.87667	R818101D	0.89325
B000903N	0.87263	R810901B	0.88955	R818101M	0.83062
B000903M	0.90415	R810901C	0.89756	R818102B	0.88899
B000904N	0.84825	R810901D	0.86104	R818102C	0.88819
B000904M	0.86494	R810901M	0.72278	R818102D	0.88388
B000905N	0.87257	R810902B	0.90628	R818102M	0.83619
B000905M	0.87975	R810902C	0.91598	R830001N	0.88434
S004001B	0.88141	R810902D	0.89186	R830001M	0.87663
S004001C	0.89989	R810902M	0.78257	R830101N	0.94992
S004001D	0.93650	R810903B	0.91407	R830101M	0.87425
S004001E	0.94786	R810903C	0.92877	R811301B	0.93891
S004001M	0.87649	R810903D	0.92784	R811301C	0.92657
B007301B	0.91620	R810903M	0.75943	R811301D	0.94903
B007301C	0.91502	R810904B	0.90282	R811301E	0.92614
B007301D	0.90310	R810904C	0.90158	R811301M	0.89768
B007301M	0.91379	R810904D	0.89567	R811302B	0.91965
B007401B	0.88168	R810904M	0.74597	R811302C	0.92919
B007401C	0.91232	R810905B	0.92892	R811302D	0.94411
B007401D	0.83302	R810905C	0.93860	R811302E	0.92825
B007401M	0.94347	R810905D	0.91736	R811302M	0.93049
B014501B	0.94875	R810905M	0.77399	R811303B	0.91004
B014501C	0.95468	R810906B	0.90056	R811303C	0.92281
B014501D	0.94315	R810906C	0.90137	R811303D	0.95804
B014501M	0.91382	R810906D	0.88905	R811303E	0.90352
R830301B	0.87989	R810906M	0.70272	R811303M	0.92395
R830301C	0.84610	R811005B	0.93956	R811304B	0.89172
R830301N	0.91282	R811005C	0.93782	R811304C	0.91075
R830301M	0.83199	R811005D	0.92966	R811304D	0.93738
R830401B	0.90460	R811005M	0.77775	R811304E	0.87954
R830401C	0.92523	R811006B	0.88944	R811304M	0.91665
R830401N	0.94199	R811006C	0.89682	C042501N	0.86706
R830401M	0.84463	R811006D	0.89611	C042501M	0.91515

Table F-8 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C042601B	0.86210	C043004D	0.87888	C032414B	0.90611
C042601C	0.88207	C043004E	0.87202	C032414C	0.94378
C042601M	0.95173	C043004M	0.98066	C032414N	0.90190
C042602B	0.86285	C043005B	0.89781	C032414M	0.98384
C042602C	0.88190	C043005C	0.91582	C043101B	0.87480
C042602M	0.96137	C043005D	0.89847	C043101C	0.94895
C042603B	0.86322	C043005E	0.89052	C043101N	0.94752
C042603C	0.87847	C043005M	0.98558	C043102B	0.88900
C042603D	0.87939	C043006B	0.89011	C043102C	0.94003
C042603M	0.92964	C043006C	0.90027	C043102N	0.94266
C042604B	0.87102	C043006D	0.87666	C043103C	0.93437
C042604C	0.91037	C043006E	0.87661	C043103N	0.94832
C042604D	0.88898	C043006M	0.98937	C043104B	0.87232
C042604N	0.85131	C043007B	0.90713	C043104C	0.94982
C042604M	0.91539	C043007C	0.89073	C043104N	0.94924
C042701Y	0.94252	C043007D	0.89631	C032502B	0.87721
C042701N	0.94868	C043007E	0.89424	C032502C	0.88962
C042701M	0.94016	C043008B	0.89885	C032503B	0.86411
C042801N	0.86703	C043008C	0.89156	C032503C	0.89815
C042801M	0.91524	C043008D	0.88621	C032503D	0.88718
C042802N	0.87656	C043008E	0.88421	C032505B	0.88158
C042802M	0.90476	C032402B	0.91383	C032505C	0.87829
C042803N	0.87103	C032402C	0.93303	C032505D	0.89413
C042803M	0.89473	C032402N	0.92774	C032505M	0.97286
C042901B	0.87919	C032402M	0.97513	C032506B	0.87922
C042901C	0.88722	C032401B	0.91209	C032506C	0.88567
C042901D	0.92288	C032401C	0.93328	C043201B	0.88754
C042901E	0.89066	C032401N	0.92631	C043201C	0.88923
C042901F	0.89872	C032404B	0.89928	C043301B	0.89834
C042901G	0.89286	C032404C	0.93742	C043301C	0.90737
C036601N	0.88440	C032404N	0.92020	C043301D	0.88769
C036601C	0.91519	C032404M	0.99525	C043301M	0.96374
C036601D	0.93828	C032407B	0.88120	C043401B	0.87043
C036601M	0.94393	C032407C	0.86168	C043401C	0.88540
C043001B	0.89769	C032408B	0.89640	C043401D	0.88473
C043001C	0.90845	C032408C	0.94827	C043501B	0.89433
C043001D	0.91907	C032408N	0.92473	C043501C	0.88847
C043001E	0.90475	C032408M	0.98120	C043501D	0.89312
C043001M	0.95985	C032409B	0.88853	C043501E	0.88921
C043002B	0.88816	C032409C	0.91790	C043501F	0.88692
C043002C	0.87632	C032409N	0.90994	C043501M	0.97203
C043002D	0.93038	C032409M	0.96823	C043601B	0.85716
C043002E	0.95446	C032410C	0.90846	C043601C	0.86306
C043002M	0.98085	C032411B	0.91149	C043601D	0.86510
C043003B	0.88769	C032411C	0.92628	C043601M	0.97090
C043003C	0.88139	C032411N	0.95323	C043701B	0.86208
C043003D	0.92795	C032412B	0.91569	C043701C	0.85297
C043003E	0.94523	C032412C	0.90764	C043701D	0.88800
C043004B	0.91028	C032413B	0.90907	C043701E	0.86648
C043004C	0.90734	C032413C	0.86486	C038301N	0.90735

Table F-8 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C038301M	0.94521	T067201B	0.94406	T067502C	0.93992
C043801B	0.88580	T067201C	0.94622	T067502M	0.97225
C043801C	0.87251	T067201D	0.95786	T067503B	0.87672
C043801D	0.90383	T067201E	0.96152	T067503C	0.94230
C043801E	0.90444	T067201M	0.96630	T067503M	0.96585
C043801F	0.89651	T067202B	0.93375	T067504B	0.89351
C043801G	0.89022	T067202C	0.94325	T067504C	0.97773
C043801H	0.87385	T067202D	0.94975	T067504M	0.98615
C043801M	0.92145	T067202E	0.94678	T067505B	0.89691
C043901N	0.91029	T067202M	0.95821	T067505C	0.98614
C043901M	0.95197	T067203B	0.94605	T067505M	0.98700
C044001B	0.87942	T067203C	0.94895	T067506B	0.86280
C044001C	0.89393	T067203D	0.96387	T067506C	0.95095
C044001D	0.90205	T067203E	0.96516	T067506M	0.99112
C044001E	0.87631	T067203M	0.95434	T067507B	0.86122
C044001F	0.86634	T067204B	0.89331	T067507C	0.98128
C044001G	0.87567	T067204C	0.88444	T067507M	0.99135
C044001H	0.90223	T067204D	0.88986	T067508B	0.89776
C044001M	0.92299	T067204E	0.89253	T067508C	0.90943
C044002B	0.87495	T067204M	0.88761	T067508M	0.95105
C044002C	0.89534	T067205B	0.89204	T067509B	0.89139
C044002D	0.91167	T067205C	0.88559	T067509C	0.92792
C044002E	0.89428	T067205D	0.91382	T067509M	0.94938
C044002F	0.89140	T067205E	0.93192	T067510B	0.89094
C044002G	0.87944	T067205M	0.91813	T067510C	0.94201
C044002H	0.91421	T067206B	0.85764	T067510M	0.96332
C044002M	0.94647	T067206C	0.84912	T067511B	0.87672
C044003B	0.87137	T067206D	0.85802	T067511C	0.97303
C044003C	0.87728	T067206E	0.86327	T067511M	0.98135
C044003D	0.88421	T067206M	0.86759	T067512B	0.89497
C044003E	0.88389	T067301B	0.91344	T067512C	0.89354
C044003F	0.89517	T067301C	0.85656	T067512M	0.87277
C044003G	0.89444	T067301D	0.83388	T067601B	0.85068
C044003H	0.92104	T067301M	0.94066	T067601C	0.80874
C044003M	0.95104	T056201B	0.88342	T067601M	0.89270
C044004B	0.90419	T056201C	0.89167	T067602B	0.93338
C044004C	0.90170	T056201D	0.88017	T067602C	0.98032
C044004D	0.89931	T056201E	0.87342	T067602M	0.97722
C044004E	0.87260	T056201F	0.85852	T067603B	0.87929
C044004G	0.91410	T056201M	0.89638	T067603C	0.93263
C044004H	0.88557	T056301B	0.90525	T067603M	0.97588
C044004M	0.93332	T056301C	0.94644	T067604B	0.91360
T067001M	0.89347	T056301D	0.93300	T067604C	0.98360
T067002M	0.88211	T056301E	0.88886	T067604M	0.98730
T067003M	0.88928	T056301F	0.88856	T067605B	0.87052
T067004M	0.84686	T056301G	0.91012	T067605C	0.92621
T067101B	0.89074	T056301M	0.95209	T067605M	0.97407
T067101C	0.88781	T067501B	0.86109	T067606B	0.84360
T067101D	0.91626	T067501C	0.86894	T067606C	0.91290
T067101E	0.93430	T067501M	0.87964	T067606M	0.96521
T067101M	0.96044	T067502B	0.87778	T067607B	0.85733

Table F-8 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T067607C	0.96492	T041201D	0.87491	T068201C	0.93433
T067607M	0.97318	T041201M	0.98493	T068201D	0.92744
T067608B	0.85562	T067901B	0.84404	T068201E	0.87694
T067608C	0.96731	T067901C	0.85204	T068201M	0.96782
T067608M	0.98397	T067901M	0.97199	T068301B	0.87401
T067609B	0.87524	T067902B	0.84804	T068301C	0.86053
T067609C	0.89762	T067902C	0.85642	T068301D	0.86811
T067609M	0.95847	T067902M	0.95933	T068301E	0.88910
T067610B	0.85283	T068001B	0.84319	T068301M	0.85064
T067610C	0.97910	T068001C	0.86481	T068401B	0.87700
T067610M	0.98413	T068001M	0.97374	T068401C	0.88555
T067611B	0.87388	T068002B	0.82330	T068401D	0.88698
T067611C	0.99489	T068002C	0.82785	T068401E	0.89155
T067611M	0.99094	T068002M	0.95189	T068401F	0.90045
T067612B	0.87542	T068003B	0.85305	T068401G	0.84200
T067612C	0.89424	T068003C	0.86668	T068401M	0.87650
T067612M	0.89891	T068003M	0.97532	T068601B	0.92077
T067701B	0.90730	T068004B	0.85927	T068601C	0.91078
T067701C	0.91856	T068004C	0.85635	T068601D	0.91942
T067701D	0.90589	T068004M	0.96887	T068601M	0.96903
T067701E	0.88700	T068005B	0.85665	T068701B	0.90376
T067701M	0.95399	T068005C	0.84475	T068701C	0.90386
T067702B	0.85943	T068005M	0.96962	T068701D	0.92571
T067702C	0.86617	T068006B	0.85948	T068701E	0.92016
T067702D	0.87432	T068006C	0.85826	T068701M	0.97327
T067702E	0.87179	T068006M	0.96043	T068801B	0.92542
T067702M	0.88192	T068007B	0.87715	T068801C	0.93716
T067801B	0.88423	T068007C	0.91181	T068801D	0.91621
T067801C	0.89761	T068007M	0.97896	T068801M	0.94768
T067801M	0.90525	T068008B	0.84827	T068802B	0.87743
T067802B	0.88293	T068008C	0.86753	T068802C	0.89648
T067802C	0.87879	T068008M	0.97839	T068802D	0.90087
T067802M	0.98708	T068009B	0.88046	T068802M	0.92013
T067803B	0.83030	T068009C	0.89851	T068803B	0.86560
T067803C	0.84850	T068009M	0.96812	T068803C	0.90377
T067803M	0.97425	T068010B	0.85445	T068803D	0.90812
T067804B	0.88049	T068010C	0.83568	T068803M	0.97091
T067804C	0.87073	T068010M	0.97561	T068804B	0.85139
T067804M	0.97815	T068101B	0.88760	T068804C	0.86643
T067805B	0.91266	T068101C	0.90374	T068804D	0.85178
T067805C	0.93156	T068101D	0.88266	T068804M	0.94621
T067805M	0.97389	T068101E	0.83922	T068805B	0.85524
T067806B	0.88682	T068101M	0.97404	T068805C	0.84710
T067806C	0.88361	T046101N	0.84667	T068805D	0.85964
T067806M	0.98086	T046101M	0.97155	T068805M	0.94281
T067807B	0.85015	T046201B	0.89903	T068901B	0.88405
T067807C	0.88704	T046201C	0.88667	T068901C	0.87330
T067807M	0.97843	T046201D	0.91646	T068901D	0.86959
T041201B	0.87723	T046201M	0.95225	T068901M	0.90342
T041201C	0.89159	T068201B	0.90581	T069001B	0.88213

Table F-8 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T069001C	0.88984	T069403B	0.87923	T069708D	0.87361
T069001D	0.90530	T069403C	0.85715	T069708M	0.96329
T069001E	0.90064	T069403D	0.85532	T069709B	0.83350
T069001M	0.85770	T069403M	0.96111	T069709C	0.86183
T069101B	0.85310	T069404B	0.86987	T069709D	0.85606
T069101C	0.87030	T069404C	0.86947	T069709M	0.97248
T069101D	0.84848	T069404D	0.86018	T069710B	0.91787
T069101M	0.97382	T069404M	0.96791	T069710C	0.92818
T069102B	0.88190	T069405B	0.88542	T069710D	0.87576
T069102C	0.88592	T069405C	0.86991	T069710M	0.97970
T069102D	0.86653	T069405D	0.88785	T069711B	0.91370
T069102M	0.96449	T069405M	0.95887	T069711C	0.93754
T069103B	0.84638	T069501B	0.90424	T069711D	0.91302
T069103C	0.90407	T069501C	0.93297	T069711M	0.94334
T069103D	0.88107	T069501D	0.90768	T069712B	0.84078
T069103M	0.94796	T069501E	0.86159	T069712C	0.85975
T069201B	0.89288	T069501M	0.97937	T069712M	0.96505
T069201C	0.89086	T069601B	0.90314	T069713B	0.83445
T069201D	0.83997	T069601C	0.90246	T069713C	0.85810
T069201M	0.97072	T069601D	0.91732	T069713D	0.86265
T069202B	0.89594	T069601M	0.97759	T069713M	0.97930
T069202C	0.91413	T069701B	0.83875	T069714B	0.88003
T069202D	0.85916	T069701C	0.85624	T069714C	0.85546
T069202M	0.96835	T069701D	0.87816	T069714D	0.88770
T069203B	0.87634	T069701M	0.98434	T069714M	0.96413
T069203C	0.93299	T069702B	0.86526	T069715B	0.86855
T069203D	0.92282	T069702C	0.87379	T069715C	0.87757
T069203M	0.96225	T069702D	0.85797	T069715D	0.86807
T069301B	0.83062	T069702M	0.98162	T069715M	0.98976
T069301N	0.88306	T069703B	0.86382	T069716B	0.90154
T069301M	0.94049	T069703C	0.87545	T069716C	0.90864
T069302B	0.83553	T069703D	0.84843	T069716D	0.85448
T069302N	0.87606	T069703M	0.96767	T069716M	0.95816
T069302M	0.96346	T069704B	0.85608	T071801B	0.91534
T069303B	0.84902	T069704C	0.87761	T071801C	0.92655
T069303N	0.86552	T069704D	0.85621	T071801D	0.89370
T069303M	0.96549	T069704M	0.95287	T071801M	0.96023
T069304B	0.84916	T069705B	0.86622	T071802B	0.87402
T069304N	0.86552	T069705C	0.85939	T071802C	0.88551
T069304M	0.95498	T069705D	0.90017	T071802D	0.84789
T069305B	0.87194	T069705M	0.97968	T071802M	0.96920
T069305N	0.87139	T069706B	0.84285	T071803B	0.88437
T069305M	0.96855	T069706C	0.85369	T071803C	0.91129
T069401B	0.85541	T069706D	0.84245	T071803D	0.88301
T069401C	0.91247	T069706M	0.98573	T071803M	0.96105
T069401D	0.84662	T069707B	0.90221	T071804B	0.87797
T069401M	0.98980	T069707C	0.92822	T071804C	0.92133
T069402B	0.85593	T069707D	0.87587	T071804D	0.91392
T069402C	0.85946	T069707M	0.98554	T071804M	0.96659
T069402D	0.87909	T069708B	0.87717	T071805B	0.90731
T069402M	0.97014	T069708C	0.90196	T071805C	0.91723

Table F-8 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T071805D	0.86105				
T071805M	0.97613	T071812M	0.97386	T070104D	0.86893
T071806B	0.89447	T071813B	0.86450	T070104M	0.96879
T071806C	0.89563	T071813C	0.88997	T070105B	0.89006
T071806D	0.86442	T071813D	0.86270	T070105C	0.88878
T071806M	0.97160	T071813M	0.96782	T070105D	0.89692
T071807B	0.85958	T069901B	0.86047	T070105M	0.94416
T071807C	0.88429	T069901C	0.86284	T070106B	0.89429
T071807D	0.86079	T069901D	0.83807	T070106C	0.91756
T071807M	0.98035	T069901M	0.94007	T070106D	0.89985
T071808B	0.89151	T069902B	0.89617	T070106M	0.96151
T071808C	0.90989	T069902C	0.91788	T070107B	0.86296
T071808D	0.87678	T069902D	0.88183	T070107C	0.87438
T071808M	0.97412	T069902M	0.95901	T070107D	0.85925
T071809B	0.85428	T069903B	0.88731	T070107M	0.97317
T071809C	0.85776	T069903C	0.93325	T070201B	0.90272
T071809D	0.87568	T069903D	0.94557	T070201C	0.88546
T071809M	0.98756	T069903M	0.95889	T070201D	0.89925
T071810B	0.90564	T070001B	0.86761	T070201M	0.94121
T071810C	0.93532	T070001C	0.89911	T070202B	0.85865
T071810D	0.90010	T070001D	0.89884	T070202C	0.85592
T071810M	0.96100	T070001M	0.98602	T070202D	0.84777
T071811B	0.89721	T070002B	0.88316	T070202M	0.97055
T071811C	0.92287	T070002C	0.92605	T070203B	0.90399
T071811D	0.89700	T070002D	0.91262	T070203C	0.91495
T071811M	0.95758	T070002M	0.97431	T070203D	0.87945
T071812B	0.86810	T070003B	0.86705	T070203M	0.96630
T071812C	0.88415	T070003C	0.87717	T070204B	0.85512
T071812D	0.89228	T070003D	0.89502	T070204C	0.86661
		T070003M	0.98401	T070204D	0.88739
		T070101B	0.88472	T070204M	0.96474
		T070101C	0.87235	T070301B	0.84249
		T070101D	0.86267	T070301C	0.86748
		T070101M	0.96714	T070301M	0.96664
		T070102B	0.86421	T070302B	0.84155
		T070102C	0.86842	T070302C	0.90085
		T070102D	0.84942	T070303B	0.84748
		T070102M	0.96014	T070303C	0.88062
		T070103B	0.86328	T070304B	0.94514
		T070103C	0.87070	T070304C	0.94800
		T070103D	0.85038	T070304M	0.95792
		T070103M	0.94464	T070305B	0.84813
		T070104B	0.90070	T070305C	0.90866
		T070104C	0.91396		

Table F-9

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.91863	G/T 26	0.72234	P/T 35	0.73589
BLACK	0.95705	G/T 27	0.69531	P/T 36	0.78005
HISPANIC	0.96148	G/P 22	0.87980	P/T 37	0.97507
ASIAN	0.93863	G/P 23	0.89785	P/T 41	0.80984
MEXICAN	0.93211	G/P 24	0.83762	P/T 42	0.80567
PUER RIC	0.95272	G/P 25	0.79481	P/T 43	0.79755
CUBN,OTH	0.96588	G/S 22	0.95234	P/T 44	0.81877
HISP-?	0.97031	G/S 23	0.93632	P/T 45	0.82220
MID CTY7	0.91586	R/T 24	0.91006	P/T 46	0.97519
FR/LCTY7	0.93033	R/T 25	0.90745	P/T 47	0.82315
FR/MCTY7	0.93499	R/T 26	0.91621	P/T 51	0.80533
LAR TWN7	0.90124	R/T 27	0.97079	P/T 52	0.85202
SML TWN7	0.92933	R/T 31	0.90578	P/T 53	0.81801
OTHER	0.93436	R/T 32	0.93125	P/T 54	0.78615
HS GRAD	0.94736	R/T 33	0.90665	P/T 55	0.98560
POST HS	0.93850	R/T 34	0.90406	P/T 56	0.85477
COL GRAD	0.95215	R/T 35	0.91257	P/T 57	0.86230
PARED-?	0.94669	R/T 36	0.95062	T/S 41	0.93824
S EAST	0.87562	R/T 37	0.91252	T/S 42	0.92253
CENTRAL	0.87726	R/T 41	0.91865	T/S 43	0.93226
WEST	0.87890	R/T 42	0.91723	T/S 51	0.91938
PRIVATE	0.92919	R/T 43	0.92475	T/S 52	0.94786
CATHOLIC	0.92090	R/T 44	0.93461	T/S 53	0.94906
BLACK	0.89586	R/T 45	0.92717	T/S 61	0.97389
HISPANIC	0.84856	R/T 46	0.93824	T/S 62	0.95477
ASIAN	0.80463	R/T 47	0.94413	T/S 63	0.93737
IEP-NO	0.82519	R/P 24	0.89406	T/S 71	0.93577
LEP-NO	0.82366	R/P 25	0.89686	T/S 72	0.94114
TITLE-N	0.77836	R/P 31	0.90416	P/S 32	0.93915
RED PRIC	0.93952	R/P 32	0.84710	P/S 33	0.90833
FREE	0.73773	R/P 33	0.90059	P/S 41	0.92178
INFO N/A	0.86303	R/P 34	0.90148	P/S 42	0.89249
SCH/REF	0.88012	R/P 35	0.90744	P/S 43	0.92791
SCH/NP	0.88317	R/P 41	0.87693	P/S 51	0.89801
TVLIN-0	0.98268	R/P 42	0.96567	P/S 52	0.96355
TV-QUAD	0.98224	R/P 43	0.95874	P/S 53	0.93603
HW-NO	0.97717	R/P 44	0.94964	SAMP S3	0.83770
HW-YES	0.97905	R/P 45	0.93140	S/R 22	0.89296
HWLIN-0	0.97361	R/S 31	0.96422	S/R 23	0.90511
HWQUAD-0	0.96858	R/S 32	0.95771	S/R 24	0.95462
HITEM=3	0.89769	R/S 33	0.96995	BLACK	0.94032
HITEM=4	0.98003	R/S 41	0.94842	HISPANIC	0.93417
PGS>5	0.80949	R/S 42	0.96487	ASIAN AM	0.92572
PGS>10	0.80448	R/S 43	0.94935	AMER IND	0.96379
G/R 22	0.89749	P/T 25	0.81136	OTHER	0.96543
G/R 23	0.90602	P/T 26	0.72670	B003001M	0.96838
G/R 24	0.94787	P/T 27	0.75567	B014601B	0.96952
G/T 22	0.67768	P/T 31	0.97900	B014601C	0.94112
G/T 23	0.70935	P/T 32	0.78921		
G/T 24	0.73244	P/T 33	0.79005		
G/T 25	0.96753	P/T 34	0.80269		

Table F-9 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
B014601M	0.86354	R810801D	0.93456	R811004C	0.92085
B003201B	0.86107	R810801M	0.85336	R811004D	0.93110
B003201C	0.79038	R810201B	0.89308	R811004M	0.68243
B003201M	0.88567	R810201C	0.87783	R818101B	0.94416
B000901N	0.83576	R810201D	0.93005	R818101C	0.95015
B000901M	0.90876	R810201M	0.73802	R818101D	0.93612
B000903N	0.89396	R810901B	0.92870	R818101M	0.66443
B000903M	0.91538	R810901C	0.93287	R818102B	0.92122
B000904N	0.87719	R810901D	0.91208	R818102C	0.90885
B000904M	0.91701	R810901M	0.83805	R818102D	0.91408
B000905N	0.91464	R810902B	0.94470	R818102M	0.70298
B000905M	0.92531	R810902C	0.95554	R830001N	0.92389
S004001B	0.85539	R810902D	0.94903	R830001M	0.82034
S004001C	0.86200	R810902M	0.71952	R811301B	0.90102
S004001D	0.91163	R810903B	0.96320	R811301C	0.94916
S004001E	0.93782	R810903C	0.97475	R811301D	0.94538
S004001M	0.72403	R810903D	0.96695	R811301E	0.88166
B007301B	0.96557	R810903M	0.73054	R811301M	0.90263
B007301C	0.96654	R810904B	0.94009	R811302B	0.90414
B007301D	0.95969	R810904C	0.93875	R811302C	0.95623
B007301M	0.82873	R810904D	0.93073	R811302D	0.95060
B007401B	0.91488	R810904M	0.69667	R811302E	0.90752
B007401C	0.91822	R810905B	0.90483	R811302M	0.92864
B007401D	0.84838	R810905C	0.91763	R811303B	0.92655
B007401M	0.89220	R810905D	0.91090	R811303C	0.92981
B014501B	0.93222	R810905M	0.73206	R811303D	0.95300
B014501C	0.93729	R810906B	0.88183	R811303E	0.92281
B014501D	0.92877	R810906C	0.87166	R811303M	0.91901
B014501M	0.83893	R810906D	0.88824	R811304B	0.93010
R830301B	0.93938	R810906M	0.72633	R811304C	0.92626
R830301C	0.93592	R811005B	0.96434	R811304D	0.94250
R830301N	0.94011	R811005C	0.97036	R811304E	0.86650
R830301M	0.87582	R811005D	0.96661	R811304M	0.89327
R830401B	0.91890	R811005M	0.76553	C042701Y	0.91267
R830401C	0.91528	R811006B	0.91043	C042701N	0.90735
R830401N	0.90695	R811006C	0.90737	C042701M	0.90625
R830401M	0.86518	R811006D	0.91368	C042801N	0.87526
RM00501B	0.84859	R811006M	0.74494	C042801M	0.88725
RM00501C	0.85643	R811007B	0.88365	C042802N	0.87018
RM00501D	0.91023	R811007C	0.88737	C042802M	0.91528
RM00501M	0.90814	R811007D	0.90187	C042803N	0.87575
R830501B	0.96067	R811007M	0.91058	C042803M	0.89022
R830501C	0.95322	R811009B	0.92903	C042901B	0.88318
R830501D	0.95171	R811009C	0.93521	C042901C	0.90190
R830501M	0.85710	R811009D	0.91117	C042901D	0.91875
R830502B	0.83615	R811009M	0.70486	C042901E	0.90476
R830502C	0.89617	R811002B	0.96090	C042901F	0.91165
R830502D	0.88876	R811002C	0.96736	C042901G	0.91159
R830502M	0.83173	R811002D	0.96386	C042901M	0.96124
R810801B	0.89777	R811002M	0.70313	C036601N	0.88845
R810801C	0.91967	R811004B	0.92840	C036601C	0.91376

Table F-9 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C036601D	0.93745	C032407B	0.87310	C032505B	0.87885
C036601M	0.97837	C032407C	0.94242	C032505C	0.89049
C043001B	0.90832	C032407N	0.93834	C032505D	0.88137
C043001C	0.90321	C032407M	0.98607	C032505M	0.97895
C043001D	0.89904	C032408B	0.87401	C032506B	0.86318
C043001E	0.88616	C032408C	0.95184	C032506C	0.89064
C043001M	0.97449	C032408N	0.93834	C032506D	0.88601
C043002B	0.89752	C032408M	0.96769	C032506M	0.95781
C043002C	0.89756	C032409B	0.88849	C043201B	0.86344
C043002D	0.93120	C032409C	0.92175	C043201C	0.86471
C043002E	0.93766	C032409N	0.90418	C043301B	0.88654
C043002M	0.94440	C032409M	0.98104	C043301C	0.90992
C043003B	0.88581	C032410B	0.90897	C043301D	0.87510
C043003C	0.89286	C032410C	0.93283	C043301M	0.94699
C043003D	0.92671	C032410N	0.93306	C043401B	0.89217
C043003E	0.92552	C032410M	0.96299	C043401C	0.87829
C043003M	0.95868	C032411B	0.92399	C043401M	0.95808
C043004B	0.89890	C032411C	0.93338	C043501B	0.88432
C043004C	0.89905	C032411N	0.93532	C043501C	0.88798
C043004D	0.86507	C032411M	0.96939	C043501D	0.88849
C043004E	0.87037	C032412B	0.91263	C043501E	0.87233
C043004M	0.94055	C032412C	0.93198	C043501F	0.86884
C043005B	0.93297	C032412N	0.93896	C043501M	0.94438
C043005C	0.92825	C032413B	0.87430	C043601B	0.87225
C043005D	0.91753	C032413C	0.94145	C043601C	0.86533
C043005E	0.88926	C032413N	0.94509	C043601D	0.88971
C043005M	0.97850	C032413M	0.99554	C043601E	0.84996
C043006B	0.85907	C032414B	0.92051	C043601M	0.94016
C043006C	0.88023	C032414C	0.94278	C043701B	0.85742
C043006D	0.85684	C032414N	0.87080	C043701C	0.88308
C043006E	0.92890	C032414M	0.96624	C043701D	0.89284
C043007B	0.89021	C043101B	0.88794	C043701E	0.88067
C043007C	0.89233	C043101C	0.94785	C043701M	0.95440
C043007D	0.88127	C043101N	0.93543	C038301N	0.88624
C043007E	0.86145	C043102B	0.89014	C038301M	0.94784
C043008B	0.88297	C043102C	0.93573	C043801B	0.90074
C043008C	0.87043	C043102N	0.92517	C043801C	0.88508
C043008D	0.91205	C043103B	0.88235	C043801D	0.91383
C043008E	0.86125	C043103C	0.87466	C043801E	0.90373
C032402B	0.89241	C043104B	0.86881	C043801F	0.89845
C032402C	0.92602	C043104C	0.95480	C043801G	0.89410
C032402N	0.91658	C043104N	0.94198	C043801H	0.87943
C032402M	0.97966	C043104M	0.97017	C043801M	0.87178
C032401B	0.90668	C032502B	0.87493	C043901N	0.92868
C032401C	0.94216	C032502C	0.89193	C043901M	0.95365
C032401N	0.90636	C032502D	0.88420	C044001B	0.88896
C032401M	0.97274	C032502M	0.96275	C044001C	0.88227
C032404B	0.90049	C032503B	0.88198	C044001D	0.87842
C032404C	0.93799	C032503C	0.88120	C044001E	0.88004
C032404N	0.89956	C032503D	0.86715	C044001F	0.88313
C032404M	0.93112	C032503M	0.96694	C044001G	0.87380

Table F-9 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C044001H	0.89032	C043106C	0.87430	T067512B	0.88722
C044001M	0.93730	T067301B	0.83002	T067512C	0.87310
C044002B	0.90232	T067301C	0.86414	T067512M	0.85460
C044002C	0.89913	T067301D	0.89140	T067601B	0.88495
C044002D	0.89012	T067301M	0.91554	T067601C	0.91035
C044002E	0.89903	T056201B	0.88342	T067601M	0.91999
C044002F	0.92336	T056201C	0.87072	T067602B	0.85188
C044002G	0.86251	T056201D	0.88856	T067602C	0.86886
C044002H	0.88598	T056201E	0.88150	T067602M	0.89088
C044002M	0.93534	T056201F	0.87515	T067603B	0.88561
C044003B	0.89403	T056201M	0.87898	T067603C	0.95175
C044003C	0.88758	T056301B	0.95051	T067603M	0.96833
C044003D	0.87957	T056301C	0.94794	T067604B	0.87053
C044003E	0.90171	T056301D	0.94810	T067604C	0.97440
C044003F	0.92736	T056301E	0.88334	T067604M	0.96926
C044003H	0.88160	T056301F	0.91644	T067605B	0.87513
C044003M	0.93744	T056301G	0.94744	T067605C	0.89826
C044004B	0.88582	T056301M	0.96556	T067605M	0.95741
C044004C	0.88889	T067501B	0.86504	T067606B	0.86640
C044004D	0.90041	T067501C	0.89089	T067606C	0.91909
C044004E	0.87206	T067501M	0.88303	T067606M	0.95379
C044004F	0.89495	T067502B	0.86582	T067607B	0.87522
C044004G	0.88326	T067502C	0.86214	T067607C	0.96027
C044004H	0.87535	T067502M	0.86952	T067607M	0.97103
C044004M	0.93394	T067503B	0.84525	T067608B	0.84801
B003501B	0.86342	T067503C	0.96109	T067608C	0.87632
B003501C	0.87816	T067503M	0.96247	T067608M	0.91414
B003501D	0.90019	T067504B	0.85746	T067609B	0.84488
B003501M	0.82188	T067504C	0.97534	T067609C	0.88152
B003601B	0.90219	T067504M	0.98492	T067609M	0.93488
B003601C	0.89128	T067505B	0.86946	T067610B	0.81574
B003601D	0.89206	T067505C	0.97471	T067610C	0.96393
B003601M	0.82192	T067505M	0.98693	T067610M	0.97038
R811010B	0.90374	T067506B	0.82962	T067611B	0.82538
R811010C	0.90932	T067506C	0.95045	T067611C	0.98191
R811010D	0.86628	T067506M	0.98234	T067611M	0.98988
R811010M	0.79875	T067507B	0.88695	T067612B	0.85234
R811011B	0.91242	T067507C	0.96962	T067612C	0.87122
R811011C	0.93107	T067507M	0.96693	T067612M	0.88046
R811011D	0.89797	T067508B	0.88640	T067701B	0.87608
R811011M	0.82907	T067508C	0.85950	T067701C	0.89319
R830201N	0.94539	T067508M	0.86852	T067701D	0.88047
R830201M	0.82114	T067509B	0.87765	T067701E	0.87131
C044401N	0.90040	T067509C	0.87168	T067701M	0.93651
C044401M	0.96247	T067509M	0.94120	T067702B	0.86273
C044402N	0.89351	T067510B	0.88570	T067702C	0.87397
C044402M	0.92385	T067510C	0.89277	T067702D	0.87391
C043105B	0.87303	T067510M	0.90356	T067702E	0.91071
C043105C	0.93898	T067511B	0.85688	T067702M	0.84583
C043105N	0.94872	T067511C	0.94819	T067801B	0.89125
C043106B	0.86420	T067511M	0.95333	T067801C	0.90150

Table F-9 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T067801M	0.89699	T068008C	0.86591	T068803M	0.93770
T067802B	0.89168	T068008M	0.98362	T068804B	0.85784
T067802C	0.86769	T068009B	0.87730	T068804C	0.85365
T067802M	0.98843	T068009C	0.89651	T068804D	0.84838
T067803B	0.84137	T068009M	0.98792	T068804M	0.95194
T067803C	0.86063	T068010B	0.84496	T068805B	0.88549
T067803M	0.98661	T068010C	0.84611	T068805C	0.91479
T067804B	0.86815	T068010M	0.99236	T068805D	0.89430
T067804C	0.87088	T046101N	0.91564	T068805M	0.94075
T067804M	0.99456	T046101M	0.94114	T068901B	0.88545
T067805B	0.89829	T046201B	0.86898	T068901C	0.90010
T067805C	0.90638	T046201C	0.86702	T068901D	0.89132
T067805M	0.98077	T046201D	0.89382	T068901M	0.88949
T067806B	0.89455	T046201M	0.95852	T069001B	0.90524
T067806C	0.89827	T068201B	0.84231	T069001C	0.89497
T067806M	0.97319	T068201C	0.87574	T069001D	0.87514
T067807B	0.85303	T068201D	0.85639	T069001E	0.88597
T067807C	0.91288	T068201E	0.80977	T069001M	0.88396
T067807M	0.97919	T068201M	0.94873	T069101B	0.85247
T041201B	0.88121	T068301B	0.87933	T069101C	0.86399
T041201C	0.89116	T068301C	0.88669	T069101D	0.82160
T041201D	0.88708	T068301D	0.87810	T069101M	0.95206
T041201M	0.98702	T068301E	0.90639	T069102B	0.86901
T067901B	0.84173	T068301M	0.90427	T069102C	0.91494
T067901C	0.84517	T068401B	0.85730	T069102D	0.88672
T067901M	0.96585	T068401C	0.88675	T069102M	0.94318
T067902B	0.82784	T068401D	0.90437	T069103B	0.85310
T067902C	0.86096	T068401E	0.91011	T069103C	0.89956
T067902M	0.96879	T068401F	0.89349	T069103D	0.90502
T068001B	0.84328	T068401G	0.86844	T069103M	0.92636
T068001C	0.84198	T068401M	0.90481	T069201B	0.88895
T068001M	0.97641	T068601B	0.86843	T069201C	0.91200
T068002B	0.83639	T068601C	0.87970	T069201D	0.85487
T068002C	0.85688	T068601D	0.89223	T069201M	0.96578
T068002M	0.97668	T068601M	0.95419	T069202B	0.88142
T068003B	0.84056	T068701B	0.88813	T069202C	0.91842
T068003C	0.85292	T068701C	0.89934	T069202D	0.86672
T068003M	0.98727	T068701D	0.89729	T069202M	0.96520
T068004B	0.87965	T068701E	0.89796	T069203B	0.86572
T068004C	0.86226	T068701M	0.95857	T069203C	0.92425
T068004M	0.97341	T068801B	0.88291	T069203D	0.90071
T068005B	0.89143	T068801C	0.91982	T069203M	0.95656
T068005C	0.88305	T068801D	0.92210	T069301B	0.85281
T068005M	0.96533	T068801M	0.94355	T069301N	0.86090
T068006B	0.85841	T068802B	0.89614	T069301M	0.95597
T068006C	0.86404	T068802C	0.89825	T069302B	0.85273
T068006M	0.98535	T068802D	0.93186	T069302N	0.86516
T068007B	0.87671	T068802M	0.93821	T069302M	0.97341
T068007C	0.91028	T068803B	0.88705	T069303B	0.84798
T068007M	0.96737	T068803C	0.88371	T069303N	0.85284
T068008B	0.85769	T068803D	0.93109	T069303M	0.95773

Table F-9 (continued)

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T069304B	0.85491	T069705B	0.84927	T069901M	0.91948
T069304N	0.85074	T069705C	0.87745	T069902B	0.91470
T069304M	0.95931	T069705D	0.84580	T069902C	0.93573
T069305B	0.91037	T069705M	0.97948	T069902D	0.83852
T069305N	0.91549	T069706B	0.87478	T069902M	0.95363
T069305M	0.95071	T069706C	0.89092	T069903B	0.86996
T069401B	0.85503	T069706D	0.87236	T069903C	0.93031
T069401C	0.85857	T069706M	0.96697	T069903D	0.92652
T069401D	0.84286	T069707B	0.88440	T069903M	0.92621
T069401M	0.97799	T069707C	0.94875	T070001B	0.86588
T069402B	0.85892	T069707D	0.89066	T070001C	0.89190
T069402C	0.88282	T069707M	0.96409	T070001D	0.91523
T069402D	0.83477	T069708B	0.87726	T070001M	0.96582
T069402M	0.98243	T069708C	0.90404	T070002B	0.88610
T069403B	0.87040	T069708D	0.84441	T070002C	0.92533
T069403C	0.87269	T069708M	0.97534	T070002D	0.91529
T069403D	0.87443	T069709B	0.87554	T070002M	0.96160
T069403M	0.97396	T069709C	0.86711	T070003B	0.87549
T069404B	0.88140	T069709D	0.83957	T070003C	0.87631
T069404C	0.92623	T069709M	0.97969	T070003D	0.90629
T069404D	0.93087	T069710B	0.91163	T070003M	0.95523
T069404M	0.96773	T069710C	0.91522	T070101B	0.86856
T069405B	0.88547	T069710D	0.85427	T070101C	0.89723
T069405C	0.90509	T069710M	0.97747	T070101D	0.87139
T069405D	0.92905	T069711B	0.86668	T070101M	0.96167
T069405M	0.97787	T069711C	0.94797	T070102B	0.86606
T069501B	0.88031	T069711D	0.93405	T070102C	0.87150
T069501C	0.92756	T069711M	0.96690	T070102D	0.84820
T069501D	0.91295	T069712B	0.84923	T070102M	0.96910
T069501E	0.88265	T069712C	0.86065	T070103B	0.83747
T069501M	0.97747	T069712D	0.88757	T070103C	0.85906
T069601B	0.89030	T069712M	0.98111	T070103D	0.85830
T069601C	0.89332	T069713B	0.85266	T070103M	0.97241
T069601D	0.88509	T069713C	0.86438	T070104B	0.90954
T069601M	0.97302	T069713D	0.85637	T070104C	0.92870
T069701B	0.85238	T069713M	0.95761	T070104D	0.86923
T069701C	0.85192	T069714B	0.87542	T070104M	0.97513
T069701D	0.85676	T069714C	0.87195	T070105B	0.87540
T069701M	0.97467	T069714D	0.86941	T070105C	0.89689
T069702B	0.87784	T069714M	0.98084	T070105D	0.90075
T069702C	0.90081	T069715B	0.87722	T070105M	0.96135
T069702D	0.84641	T069715C	0.87201	T070106B	0.89632
T069702M	0.97512	T069715D	0.84682	T070106C	0.91948
T069703B	0.88220	T069715M	0.98367	T070106D	0.86490
T069703C	0.88884	T069716B	0.87209	T070106M	0.96900
T069703D	0.83626	T069716C	0.90771	T070107B	0.87044
T069703M	0.97541	T069716D	0.86682	T070107C	0.87407
T069704B	0.89892	T069716M	0.98009	T070107D	0.87620
T069704C	0.90709	T069901B	0.85174	T070107M	0.96444
T069704D	0.88821	T069901C	0.87151	T070201B	0.89826
T069704M	0.97695	T069901D	0.87529	T070201C	0.90230

Table F-9 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T070201D	0.91690	T070305M	0.96200	T069801M	0.97853
T070201M	0.95467	T071601M	0.87257	T069802B	0.81889
T070202B	0.84303	T071602M	0.87182	T069802C	0.80335
T070202C	0.85569	T071603M	0.86012	T069802M	0.98046
T070202D	0.84843	T071604M	0.87211	T069803B	0.82804
T070202M	0.96665	T040301B	0.86358	T069803C	0.84551
T070203B	0.89680	T040301C	0.88428	T069803M	0.97289
T070203C	0.89991	T040301D	0.90299	T069804B	0.86311
T070203D	0.86306	T040301E	0.92153	T069804C	0.86561
T070203M	0.96877	T040301M	0.97388	T069804M	0.97645
T070204B	0.87789	T071701B	0.85481	T069805B	0.82502
T070204C	0.87409	T071701C	0.85462	T069805C	0.83843
T070204D	0.87810	T071701D	0.88252	T069805M	0.97913
T070204M	0.96464	T071701E	0.88374	T069806B	0.82269
T070301B	0.84069	T071701F	0.88370	T069806C	0.82037
T070301C	0.84191	T071701M	0.88327	T069806M	0.97759
T070301M	0.96198	T071702B	0.89244	T069807B	0.83808
T070302B	0.83558	T071702C	0.89268	T069807C	0.85058
T070302C	0.85024	T071702D	0.90677	T069807M	0.98176
T070302M	0.96958	T071702E	0.91266	T069808B	0.83549
T070303B	0.85563	T071702F	0.91712	T069808C	0.83281
T070303C	0.83576	T071702M	0.90123	T069808M	0.97631
T070303M	0.96322	T071703B	0.89839	T069809B	0.83543
T070304B	0.92611	T071703C	0.91148	T069809C	0.82326
T070304C	0.92677	T071703D	0.90516	T069809M	0.98677
T070304M	0.96145	T071703E	0.91676	T069810B	0.88730
T070305B	0.83924	T071703F	0.92695	T069810C	0.89291
T070305C	0.84039	T071703M	0.87981	T069810M	0.98140
		T071704B	0.87064	T069811B	0.87914
		T071704C	0.87638	T069811C	0.89690
		T071704D	0.87588	T069811M	0.97520
		T071704E	0.88656	T069812B	0.85616
		T071704F	0.85706	T069812C	0.87411
		T071704M	0.92345	T069812M	0.97451
		T067703B	0.85549	T069813B	0.85141
		T067703C	0.87321	T069813C	0.86230
		T067703D	0.86680	T069813M	0.97485
		T067703E	0.87364	CLASIZ-2	0.89334
		T067703M	0.87077	CLASIZ-3	0.88514
		T068501N	0.90908	CLASIZ-4	0.91240
		T068501M	0.94726	CLASIZ-5	0.92105
		T069801B	0.88969	CLASIZ-?	0.82479
		T069801C	0.85555		

Table F-10

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Reading Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.92556	G/T 26	0.64242	P/T 35	0.76154
BLACK	0.96266	G/T 27	0.67020	P/T 36	0.81262
HISPANIC	0.96052	G/P 22	0.91946	P/T 37	0.95056
ASIAN	0.94800	G/P 23	0.95609	P/T 41	0.78351
MEXICAN	0.95006	G/P 24	0.89890	P/T 42	0.78719
PUER RIC	0.97750	G/P 25	0.89159	P/T 43	0.79359
CUBN,OTH	0.97190	G/S 22	0.95188	P/T 44	0.80266
HISP-?	0.97661	G/S 23	0.93042	P/T 45	0.83330
MID CTY7	0.91920	R/T 24	0.90409	P/T 46	0.95621
FR/LCTY7	0.92127	R/T 25	0.90054	P/T 47	0.79274
FR/MCTY7	0.93821	R/T 26	0.91009	P/T 51	0.80628
LAR TWN7	0.91496	R/T 27	0.96559	P/T 52	0.88842
SML TWN7	0.92617	R/T 31	0.90532	P/T 53	0.92641
OTHER	0.93123	R/T 32	0.91274	P/T 54	0.89651
HS GRAD	0.93917	R/T 33	0.90715	P/T 55	0.96385
POST HS	0.93724	R/T 34	0.89826	P/T 56	0.92049
COL GRAD	0.95058	R/T 35	0.89648	P/T 57	0.94191
PARED-?	0.92974	R/T 36	0.93198	T/S 41	0.92516
S EAST	0.84277	R/T 37	0.91416	T/S 42	0.91245
CENTRAL	0.86971	R/T 41	0.92774	T/S 43	0.94292
WEST	0.88509	R/T 42	0.92199	T/S 51	0.92583
PRIVATE	0.89567	R/T 43	0.91686	T/S 52	0.95720
CATHOLIC	0.92089	R/T 44	0.92078	T/S 53	0.96226
BLACK	0.89781	R/T 45	0.92911	T/S 61	0.95341
HISPANIC	0.84808	R/T 46	0.94090	T/S 62	0.94916
ASIAN	0.84659	R/T 47	0.95255	T/S 63	0.92347
IEP-NO	0.96435	R/P 24	0.88235	T/S 72	0.92561
LEP-NO	0.88193	R/P 25	0.88800	P/S 32	0.93276
TITLE-N	0.81111	R/P 31	0.89566	P/S 33	0.90572
RED PRIC	0.95448	R/P 32	0.80255	P/S 41	0.91998
FREE	0.77943	R/P 33	0.88214	P/S 42	0.89010
INFO N/A	0.86564	R/P 34	0.88508	P/S 43	0.92442
SCH/REF	0.91498	R/P 35	0.89583	P/S 51	0.90200
SCH/REF	0.82294	R/P 41	0.84197	P/S 52	0.96608
TVLIN-0	0.98053	R/P 42	0.93544	P/S 53	0.95421
TV-QUAD	0.97956	R/P 43	0.94672	SAMP S3	0.79554
HW-NO	0.98894	R/P 44	0.93287	S/R 22	0.88010
HW-YES	0.99005	R/P 45	0.85388	S/R 23	0.89515
HWLIN-0	0.97335	R/S 31	0.96648	S/R 24	0.95525
HWQUAD-0	0.96716	R/S 32	0.94676	BLACK	0.93907
HITEM=3	0.93489	R/S 33	0.95396	HISPANIC	0.94083
HITEM=4	0.98138	R/S 41	0.94626	ASIAN AM	0.92057
PGS>5	0.81759	R/S 42	0.96773	AMER IND	0.99021
PGS>10	0.82434	R/S 43	0.95163	OTHER	0.98045
G/R 22	0.90119	P/T 25	0.80537	B003001M	0.96914
G/R 23	0.90941	P/T 26	0.79446	B014601B	0.92147
G/R 24	0.94910	P/T 27	0.82859	B014601C	0.90406
G/T 22	0.67817	P/T 31	0.95359	B014601M	0.74598
G/T 23	0.73920	P/T 32	0.79972		
G/T 24	0.69002	P/T 33	0.80781		
G/T 25	0.94884	P/T 34	0.77873		

Table F-10 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
B003201B	0.86397	R810801M	0.89822	R811004D	0.94231
B003201C	0.75995	R810201B	0.91262	R811004M	0.81117
B003201M	0.77033	R810201C	0.88625	R818101B	0.95591
B000901N	0.87363	R810201D	0.95355	R818101C	0.96143
B000901M	0.75400	R810201M	0.78711	R818101D	0.94459
B000903N	0.92996	R810901B	0.94167	R818101M	0.78738
B000903M	0.71515	R810901C	0.92924	R818102B	0.93294
B000904N	0.91798	R810901D	0.92250	R818102C	0.92232
B000904M	0.90066	R810901M	0.91129	R818102D	0.92049
B000905N	0.96085	R810902B	0.93355	R818102M	0.72662
B000905M	0.74232	R810902C	0.94014	R830001N	0.95687
S004001B	0.85833	R810902D	0.94393	R830001M	0.85759
S004001C	0.87728	R810902M	0.81851	R811301B	0.89848
S004001D	0.92195	R810903B	0.96956	R811301C	0.95806
S004001E	0.94919	R810903C	0.97729	R811301D	0.95055
S004001M	0.76851	R810903D	0.97017	R811301E	0.87751
B007301B	0.98596	R810903M	0.90392	R811301M	0.88578
B007301C	0.98506	R810904B	0.94347	R811302B	0.89518
B007301D	0.97074	R810904C	0.94476	R811302C	0.95902
B007301M	0.85229	R810904D	0.94823	R811302D	0.96056
B007401B	0.91516	R810904M	0.84205	R811302E	0.89975
B007401C	0.91994	R810905B	0.89092	R811302M	0.90287
B007401D	0.87221	R810905C	0.89391	R811303B	0.93668
B007401M	0.86043	R810905D	0.89973	R811303C	0.93201
B014501B	0.91292	R810905M	0.73369	R811303D	0.94847
B014501C	0.91183	R810906B	0.88088	R811303E	0.92862
B014501D	0.91925	R810906C	0.87370	R811303M	0.89102
B014501M	0.82808	R810906D	0.94355	R811304B	0.93722
R830301B	0.97727	R810906M	0.68444	R811304C	0.93732
R830301C	0.97085	R811005B	0.97079	R811304D	0.94002
R830301N	0.96885	R811005C	0.96812	R811304E	0.88211
R830301M	0.93656	R811005D	0.96649	R811304M	0.88068
R830401B	0.95510	R811005M	0.86718	C042701Y	0.88575
R830401C	0.95922	R811006B	0.93676	C042701N	0.86347
R830401N	0.95309	R811006C	0.93532	C042701M	0.96282
R830401M	0.94177	R811006D	0.94289	C042801N	0.84234
RM00501B	0.85455	R811006M	0.79333	C042801M	0.87521
RM00501C	0.85107	R811007B	0.86994	C042802N	0.88996
RM00501D	0.91709	R811007C	0.86626	C042802M	0.88454
RM00501M	0.95813	R811007D	0.92156	C042803N	0.82181
R830501B	0.97442	R811007M	0.63211	C042803M	0.86245
R830501C	0.96723	R811009B	0.96657	C042901B	0.86530
R830501D	0.96150	R811009C	0.96539	C042901C	0.87832
R830501M	0.93054	R811009D	0.95445	C042901D	0.89470
R830502B	0.81317	R811009M	0.83030	C042901E	0.90018
R830502C	0.91556	R811002B	0.95733	C042901F	0.92584
R830502D	0.91915	R811002C	0.95586	C042901G	0.93966
R830502M	0.93508	R811002D	0.94606	C036601N	0.87034
R810801B	0.86061	R811002M	0.86185	C036601C	0.92233
R810801C	0.90599	R811004B	0.92321	C036601D	0.95962
R810801D	0.94047	R811004C	0.91601	C036601M	0.98315

Table F-10 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C043001B	0.88304	C032408M	0.98245	C043301B	0.91436
C043001C	0.90297	C032409B	0.91441	C043301C	0.90894
C043001D	0.90494	C032409C	0.92440	C043301D	0.86567
C043001E	0.82678	C032409N	0.89459	C043301E	0.86671
C043001M	0.96936	C032409M	0.96261	C043301M	0.94129
C043002B	0.87970	C032410B	0.89295	C043401B	0.86600
C043002C	0.92306	C032410C	0.90683	C043401C	0.86882
C043002D	0.94163	C032410N	0.85585	C043401D	0.87768
C043002E	0.90319	C032410M	0.98637	C043401M	0.98161
C043002M	0.99537	C032411B	0.91240	C043501B	0.90410
C043003B	0.91687	C032411C	0.91745	C043501C	0.88360
C043003C	0.92339	C032411N	0.85115	C043501D	0.89743
C043003D	0.94049	C032412B	0.89553	C043501E	0.91971
C043003E	0.89342	C032412C	0.92107	C043501F	0.87506
C043004B	0.88908	C032412N	0.87415	C043501M	0.95386
C043004C	0.89671	C032413B	0.86196	C043601B	0.86602
C043004D	0.89673	C032413C	0.94414	C043601C	0.88368
C043004E	0.85294	C032413N	0.94105	C043601D	0.85693
C043004M	0.97950	C032413M	0.98045	C043601E	0.89070
C043005B	0.91257	C032414B	0.90745	C043601M	0.95363
C043005C	0.94358	C032414C	0.95656	C043701B	0.85514
C043005D	0.91665	C032414N	0.88228	C043701C	0.88042
C043005E	0.88043	C032414M	0.96390	C043701D	0.86392
C043006B	0.87537	C043101B	0.90808	C043701E	0.87586
C043006C	0.86316	C043101C	0.96053	C038301N	0.84367
C043006D	0.83690	C043101N	0.89772	C038301M	0.95649
C043006E	0.89414	C043101M	0.96016	C043801B	0.87833
C043007B	0.87091	C043102B	0.90855	C043801C	0.90458
C043007C	0.86215	C043102C	0.93552	C043801D	0.94938
C043007D	0.85550	C043102N	0.90900	C043801E	0.92564
C043007E	0.92831	C043103B	0.83897	C043801F	0.87878
C043007M	0.99123	C043103C	0.80742	C043801G	0.87225
C043008B	0.86222	C043104B	0.88360	C043801H	0.84276
C043008C	0.85184	C043104C	0.93648	C043801M	0.86248
C043008D	0.94500	C043104N	0.91318	C043901N	0.92376
C043008M	0.96252	C032502B	0.86667	C043901M	0.90846
C032402B	0.90360	C032502C	0.89727	C044001B	0.87698
C032402C	0.93402	C032502M	0.95010	C044001C	0.90992
C032402N	0.89889	C032503B	0.86274	C044001D	0.87828
C032401B	0.91878	C032503C	0.88418	C044001E	0.89033
C032401C	0.93697	C032503D	0.89217	C044001F	0.86449
C032401N	0.88352	C032505B	0.83288	C044001G	0.83804
C032404B	0.88765	C032505C	0.87298	C044001H	0.87468
C032404C	0.95659	C032505D	0.86999	C044001M	0.81822
C032404N	0.90087	C032506B	0.88075	C044002B	0.89583
C032407B	0.86856	C032506C	0.88345	C044002C	0.88789
C032407C	0.94962	C032506D	0.87020	C044002D	0.89806
C032407N	0.94210	C032506M	0.97520	C044002E	0.89605
C032408B	0.87010	C043201B	0.85358	C044002F	0.95014
C032408C	0.95151	C043201C	0.89831	C044002G	0.85461
C032408N	0.93056	C043201M	0.97415	C044002H	0.88234

Table F-10 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Reading Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C044002M	0.91193	B003601C	0.86826	R820201N	0.95754
C044003B	0.86468	B003601D	0.88233	R820201M	0.80416
C044003C	0.89377	B003601M	0.76207	C044301N	0.85229
C044003D	0.88056	R811010B	0.85752	C044301M	0.96908
C044003E	0.88336	R811010C	0.92199	C044302N	0.88233
C044003F	0.94047	R811010D	0.78365	C044302M	0.89047
C044003G	0.88655	R811010M	0.84796	C044101B	0.87288
C044003M	0.91818	R811011B	0.86748	C044101C	0.87827
C044004B	0.88744	R811011C	0.93164	C044101D	0.87620
C044004C	0.89993	R811011D	0.82845	C044101E	0.87625
C044004D	0.88832	R811011M	0.89340	C044101M	0.96446
C044004E	0.89427	R830201N	0.98108	C044201B	0.87631
C044004F	0.89061	R830201M	0.83522	C044201C	0.88432
C044004G	0.85647	C043105B	0.90993	C044201D	0.94953
C044004H	0.91655	C043105C	0.90936	C044201E	0.93262
C044004M	0.86840	C043105N	0.86405	C044201F	0.90545
B003501B	0.86042	C043105M	0.95678	C044201G	0.88449
B003501C	0.89419	C043106B	0.88466	C044201H	0.87252
B003501D	0.90425	C043106C	0.91913	C044201M	0.92210
B003501M	0.83066	C043106N	0.85432	C044202B	0.89284
B003601B	0.89048	C043106M	0.97291	C044202C	0.87966
		B005501B	0.97512	C044202D	0.90416
		B005501C	0.96147	C044202E	0.93099
		B005501D	0.93842	C044202F	0.92740
		B005501E	0.98014	C044202G	0.86936
		B005501F	0.98201	C044202H	0.87673
		B005501M	0.67580	C044202M	0.93443

Table F-11

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.94244	G/T 25	0.95922	P/T 34	0.71999
BLACK	0.95815	G/T 26	0.67630	P/T 35	0.70776
HISPANIC	0.95803	G/T 27	0.69983	P/T 36	0.76352
ASIAN	0.91322	G/P 22	0.97629	P/T 37	0.95982
MEXICAN	0.92150	G/P 23	0.96222	P/T 41	0.70822
PUER RIC	0.97705	G/P 24	0.74045	P/T 42	0.73031
CUBN,OTH	0.96755	G/P 25	0.98022	P/T 43	0.82918
HISP-?	0.96639	G/S 22	0.91847	P/T 44	0.86080
MID CTY7	0.94612	G/S 23	0.87845	P/T 45	0.86735
FR/LCTY7	0.94949	R/T 24	0.91777	P/T 46	0.97450
FR/MCTY7	0.94295	R/T 25	0.92052	P/T 47	0.82690
LAR TWN7	0.93987	R/T 26	0.92075	P/T 51	0.81442
SML TWN7	0.94622	R/T 27	0.96934	P/T 52	0.74812
OTHER	0.95187	R/T 31	0.90534	P/T 53	0.73660
HS GRAD	0.95494	R/T 32	0.91216	P/T 54	0.74457
POST HS	0.95538	R/T 33	0.90594	P/T 55	0.96202
COL GRAD	0.95482	R/T 34	0.89971	P/T 56	0.71607
PARED-?	0.95313	R/T 35	0.89886	P/T 57	0.75964
S EAST	0.86378	R/T 36	0.95164	T/S 41	0.92640
CENTRAL	0.85133	R/T 37	0.89337	T/S 42	0.91169
WEST	0.86190	R/T 41	0.88759	T/S 43	0.92180
PRIVATE	0.92664	R/T 42	0.93809	T/S 51	0.91204
CATHOLIC	0.94864	R/T 43	0.92924	T/S 52	0.93756
BLACK	0.83360	R/T 44	0.92669	T/S 53	0.92410
HISPANIC	0.72536	R/T 45	0.93200	T/S 61	0.95855
ASIAN	0.70319	R/T 46	0.94033	T/S 62	0.94810
IEP-NO	0.96283	R/T 47	0.94162	T/S 63	0.92658
LEP-NO	0.93339	R/P 24	0.91869	T/S 71	0.92613
TITLE-N	0.76751	R/P 25	0.90656	T/S 72	0.94786
RED PRIC	0.94086	R/P 31	0.91135	T/S 73	0.95072
FREE	0.75317	R/P 32	0.89912	P/S 32	0.93964
INFO N/A	0.87859	R/P 33	0.91960	P/S 33	0.90329
SCH/REF	0.88491	R/P 34	0.89946	P/S 41	0.93253
SCH/NP	0.86105	R/P 35	0.89281	P/S 42	0.90370
TVLIN-0	0.96218	R/P 41	0.90527	P/S 43	0.90882
TV-QUAD	0.98458	R/P 42	0.97639	P/S 51	0.89333
HW-NO	0.97691	R/P 43	0.96885	P/S 52	0.93168
HW-YES	0.97851	R/P 44	0.95538	P/S 53	0.92567
HWLIN-0	0.98919	R/P 45	0.96062	A/G 22	0.86063
HWQUAD-0	0.97029	R/S 31	0.95822	A/R 22	0.90816
HITEM=3	0.98152	R/S 32	0.95099	A/R 23	0.93344
HITEM=4	0.97329	R/S 33	0.95921	A/R 24	0.95447
PGS>5	0.98067	R/S 41	0.93595	A/T 22	0.91748
PGS>10	0.81814	R/S 42	0.95302	A/T 23	0.91370
NO ACCOM	0.93966	R/S 43	0.95988	A/T 24	0.92386
G/R 22	0.90939	P/T 25	0.76432	A/T 25	0.97287
G/R 23	0.90465	P/T 26	0.77105	A/T 26	0.93132
G/R 24	0.96613	P/T 27	0.73335	A/T 27	0.92380
G/T 22	0.67149	P/T 31	0.95862		
G/T 23	0.78597	P/T 32	0.70994		
G/T 24	0.74567	P/T 33	0.78830		

Table F-11 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
A/P 22	0.84593	B001101B	0.94211	W802001B	0.81229
A/P 23	0.85837	B001101C	0.93882	W802001C	0.80665
A/P 24	0.85840	B001101E	0.97926	W802001M	0.75585
A/P 25	0.82029	B014001B	0.91304	W802101B	0.84013
A/S 22	0.95301	B014001C	0.92447	W802101C	0.84225
A/S 23	0.95460	B014001D	0.95465	W802101M	0.79406
A/I 22	0.97843	B014001E	0.95472	W802201B	0.92133
A/L 22	0.92559	B014001M	0.81203	W802201C	0.92171
BLACK	0.91647	B007301B	0.95938	W802201M	0.75102
HISPANIC	0.81554	B007301C	0.95846	W802301B	0.86779
ASIAN AM	0.86411	B007301D	0.93867	W802301C	0.91373
AMER IND	0.98658	B007301M	0.85067	W802301D	0.87894
OTHER	0.98844	B007401B	0.86972	W802301M	0.77447
B003001M	0.70073	B007401C	0.91739	W802302B	0.95070
CUBAN	0.97870	B007401D	0.81643	W802302C	0.94156
B013001B	0.98138	B007401M	0.84988	W802302D	0.95155
B013001C	0.98148	B014101B	0.90941	W802302M	0.75796
B013001D	0.97868	B014101C	0.91103	W802303B	0.94057
B013001M	0.76220	B014101D	0.93678	W802303C	0.93988
B013101B	0.95932	B014101E	0.93842	W802303D	0.93166
B013101C	0.93226	B014101M	0.85440	W802303M	0.74540
B013101D	0.90591	W803001B	0.88490	W802304B	0.88399
B013101M	0.74885	W803001C	0.84525	W802304C	0.92969
B013201N	0.81343	W803001N	0.92233	W802304D	0.87136
B013201M	0.74996	W803001M	0.82121	W802304M	0.72189
B013301N	0.80509	W803101B	0.92144	W802401N	0.95002
B013301M	0.75254	W803101C	0.93485	W802401M	0.95064
B013401N	0.85375	W803101N	0.95596	W802501B	0.93785
B013401M	0.83776	W803101M	0.83087	W802501N	0.95243
B013501N	0.79732	W803201B	0.92532	W802501M	0.77006
B013501M	0.75752	W803201C	0.91376	W802502B	0.86685
B013601N	0.79972	W803201D	0.90619	W802502N	0.87695
B013601M	0.77886	W803201M	0.76549	W802502M	0.85521
B013701N	0.81626	W803301B	0.96527	W802503B	0.93334
B013701M	0.83254	W803301C	0.94166	W802503N	0.93479
B000901N	0.96054	W803301D	0.93665	W802503M	0.81991
B000901M	0.95439	W803301M	0.80196	W802504B	0.87671
B000903N	0.96628	W803302B	0.82769	W802504N	0.87122
B000903M	0.96934	W803302C	0.88960	W802504M	0.84328
B013801B	0.97488	W803302D	0.92585	W802601B	0.91988
B013801C	0.96737	W803302M	0.81930	W802601C	0.94395
B013801D	0.96019	W801901B	0.90453	W802601D	0.88329
B013801M	0.69085	W801901C	0.92150	W802601M	0.90272
B000905N	0.95289	W801901D	0.94299	W802602B	0.90198
B000905M	0.94115	W801901E	0.95103	W802602C	0.94486
B013901B	0.92253	W801901M	0.83169	W802602D	0.86750
B013901C	0.95175	W801902B	0.89950	W802602M	0.92774
B013901D	0.96945	W801902C	0.92525	W802603B	0.94774
B013901E	0.96899	W801902D	0.94531	W802603C	0.93983
B013901F	0.96033	W801902E	0.96143	W802603D	0.93501
B006601B	0.93413	W801902M	0.92955	W802603M	0.91162

Table F-11 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C042501N	0.85419	C043003C	0.87580	C032410C	0.88366
C042501M	0.91454	C043003D	0.93885	C032411B	0.91026
C042601B	0.84940	C043003E	0.95284	C032411C	0.91705
C042601C	0.90979	C043004B	0.89558	C032411N	0.94852
C042601D	0.89760	C043004C	0.90144	C032412B	0.90953
C042601M	0.93660	C043004D	0.85878	C032412C	0.89550
C042602B	0.85014	C043004E	0.85191	C032413B	0.88222
C042602C	0.85661	C043004M	0.97949	C032413C	0.82215
C042602D	0.90151	C043005B	0.88990	C032414B	0.89653
C042602N	0.93131	C043005C	0.92251	C032414C	0.95116
C042602M	0.91356	C043005D	0.90962	C032414N	0.90868
C042603B	0.85057	C043005E	0.87975	C032414M	0.97860
C042603C	0.87354	C043005M	0.98590	C043101B	0.88391
C042603D	0.87299	C043006B	0.86621	C043101C	0.94846
C042603M	0.89395	C043006C	0.87832	C043101N	0.94907
C042604B	0.87213	C043006D	0.85182	C043102B	0.88352
C042604C	0.90265	C043006E	0.86408	C043102C	0.93600
C042604D	0.87510	C043006M	0.99008	C043102N	0.93755
C042604N	0.87611	C043007B	0.90094	C043103B	0.89660
C042604M	0.88801	C043007C	0.89890	C043103C	0.94203
C042701Y	0.94557	C043007D	0.89965	C043103N	0.95888
C042701N	0.94441	C043007E	0.87421	C043104B	0.86618
C042701M	0.93273	C043008B	0.88132	C043104C	0.94993
C042801N	0.85290	C043008C	0.88986	C043104N	0.95103
C042801M	0.87638	C043008D	0.87546	C032502B	0.86011
C042802N	0.87245	C043008E	0.88219	C032502C	0.86111
C042802M	0.86269	C043008M	0.97720	C032502D	0.85292
C042803N	0.85694	C032402B	0.88324	C032502M	0.99409
C042803M	0.87465	C032402C	0.92795	C032503B	0.85025
C042901B	0.87239	C032402N	0.92523	C032503C	0.87897
C042901C	0.89511	C032402M	0.95915	C032503D	0.90774
C042901D	0.92653	C032401B	0.89346	C032503M	0.97593
C042901E	0.91543	C032401C	0.93020	C032505B	0.84961
C042901F	0.90296	C032401N	0.91101	C032505C	0.85544
C042901G	0.89219	C032401M	0.98369	C032505D	0.89384
C042901M	0.87159	C032404B	0.88103	C032505M	0.98818
C036601N	0.88533	C032404C	0.94600	C032506B	0.86175
C036601C	0.91640	C032404N	0.92637	C032506C	0.85719
C036601D	0.93275	C032404M	0.98933	C043201B	0.85017
C036601M	0.93186	C032407B	0.88689	C043201C	0.86582
C043001B	0.88219	C032407C	0.94483	C043301B	0.86355
C043001C	0.91329	C032407N	0.94336	C043301C	0.89772
C043001D	0.90726	C032408B	0.87251	C043301D	0.88457
C043001E	0.88886	C032408C	0.94901	C043301M	0.96301
C043001M	0.96145	C032408N	0.92006	C043401B	0.86440
C043002B	0.88318	C032408M	0.97057	C043401C	0.88493
C043002C	0.86602	C032409B	0.87659	C043401D	0.86389
C043002D	0.92674	C032409C	0.92048	C043501B	0.89666
C043002E	0.95135	C032409N	0.89023	C043501C	0.89885
C043002M	0.98604	C032409M	0.96607	C043501D	0.90027
C043003B	0.86216	C032410B	0.90705	C043501E	0.87925

Table F-11 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C043501F	0.88218	C044004F	0.87226	T056201F	0.86111
C043501M	0.96963	C044004G	0.96501	T056201M	0.88140
C043601B	0.84710	C044004H	0.87281	T056301B	0.92888
C043601C	0.89175	C044004M	0.92930	T056301C	0.94686
C043601D	0.85680	T067001M	0.87694	T056301D	0.94831
C043601M	0.97293	T067002M	0.86110	T056301E	0.89143
C043701B	0.86478	T067003M	0.87259	T056301F	0.87472
C043701C	0.85151	T067004M	0.81662	T056301G	0.87768
C043701D	0.87824	T067101B	0.86615	T056301M	0.94691
C043701E	0.87909	T067101C	0.87379	T067501B	0.89186
C043701M	0.97867	T067101D	0.90126	T067501C	0.85757
C038301N	0.87055	T067101E	0.91032	T067501M	0.85861
C038301M	0.94878	T067101M	0.95428	T067502B	0.89090
C043801B	0.87580	T067201B	0.93433	T067502C	0.93552
C043801C	0.87721	T067201C	0.93481	T067502M	0.96862
C043801D	0.88617	T067201D	0.95298	T067503B	0.90155
C043801E	0.91215	T067201E	0.95857	T067503C	0.92760
C043801F	0.89889	T067201M	0.96135	T067503M	0.95926
C043801G	0.87676	T067202B	0.92406	T067504B	0.86693
C043801H	0.87074	T067202C	0.92752	T067504C	0.97668
C043801M	0.89572	T067202D	0.93950	T067504M	0.98247
C043901N	0.90309	T067202E	0.94298	T067505B	0.91315
C043901M	0.95754	T067202M	0.95033	T067505C	0.98971
C044001B	0.87571	T067203B	0.93295	T067505M	0.98892
C044001C	0.88049	T067203C	0.93782	T067506B	0.86083
C044001D	0.87917	T067203D	0.95785	T067506C	0.93945
C044001E	0.87044	T067203E	0.95941	T067506M	0.98667
C044001F	0.85421	T067203M	0.95446	T067507B	0.89296
C044001G	0.86779	T067204B	0.86924	T067507C	0.98439
C044001H	0.89664	T067204C	0.86916	T067507M	0.99059
C044001M	0.92154	T067204D	0.88645	T067508B	0.91196
C044002B	0.88520	T067204E	0.86979	T067508C	0.90653
C044002C	0.89124	T067204M	0.86770	T067508M	0.93440
C044002D	0.90349	T067205B	0.86476	T067509B	0.89792
C044002E	0.88854	T067205C	0.86373	T067509C	0.92610
C044002F	0.89277	T067205D	0.89518	T067509M	0.93885
C044002G	0.88976	T067205E	0.92163	T067510B	0.91750
C044002H	0.90361	T067205M	0.89337	T067510C	0.93354
C044002M	0.93629	T067206B	0.84599	T067510M	0.94961
C044003B	0.86084	T067206C	0.83590	T067511B	0.85369
C044003C	0.86560	T067206D	0.85027	T067511C	0.96311
C044003D	0.87409	T067206E	0.84120	T067511M	0.97407
C044003E	0.86411	T067206M	0.86030	T067512B	0.91300
C044003F	0.88359	T067301B	0.88793	T067512C	0.88208
C044003G	0.88504	T067301C	0.85143	T067512M	0.86105
C044003H	0.90089	T067301D	0.85650	T067601B	0.87462
C044003M	0.93954	T067301M	0.93470	T067601C	0.78618
C044004B	0.89851	T056201B	0.86632	T067601M	0.86576
C044004C	0.89178	T056201C	0.88924	T067602B	0.91552
C044004D	0.89323	T056201D	0.90058	T067602C	0.97302
C044004E	0.85603	T056201E	0.86828	T067602M	0.97538

Table F-11 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T067603B	0.87045	T067805B	0.90342	T068101D	0.87040
T067603C	0.93059	T067805C	0.92049	T068101E	0.87320
T067603M	0.97790	T067805M	0.96882	T068101M	0.95552
T067604B	0.85615	T067806B	0.88163	T046101N	0.81590
T067604C	0.97623	T067806C	0.87781	T046101M	0.94893
T067604M	0.98554	T067806M	0.97776	T046201B	0.87864
T067605B	0.84784	T067807B	0.83360	T046201C	0.86826
T067605C	0.91119	T067807C	0.86186	T046201D	0.91185
T067605M	0.96731	T067807M	0.97745	T046201M	0.93840
T067606B	0.83923	T041201B	0.89339	T068201B	0.91659
T067606C	0.88671	T041201C	0.90118	T068201C	0.94581
T067606M	0.96062	T041201D	0.88912	T068201D	0.93917
T067607B	0.87449	T041201M	0.98065	T068201E	0.90746
T067607C	0.95163	T067901B	0.82376	T068201M	0.95673
T067607M	0.97458	T067901C	0.85259	T068301B	0.89675
T067608B	0.89015	T067901M	0.96869	T068301C	0.88106
T067608C	0.96318	T067902B	0.82726	T068301D	0.87602
T067608M	0.97463	T067902C	0.86355	T068301E	0.88150
T067609B	0.88167	T067902M	0.95563	T068301M	0.81871
T067609C	0.89892	T068001B	0.83763	T068401B	0.88636
T067609M	0.95076	T068001C	0.85544	T068401C	0.86742
T067610B	0.86420	T068001M	0.96505	T068401D	0.89396
T067610C	0.97506	T068002B	0.80274	T068401E	0.89722
T067610M	0.98006	T068002C	0.84561	T068401F	0.89517
T067611B	0.85651	T068002M	0.95336	T068401G	0.86322
T067611C	0.99297	T068003B	0.83646	T068401M	0.85075
T067612B	0.87892	T068003C	0.85141	T068601B	0.90724
T067612C	0.87329	T068003M	0.97091	T068601C	0.89272
T067612M	0.87743	T068004B	0.85952	T068601D	0.91058
T067701B	0.90942	T068004C	0.86524	T068601M	0.95780
T067701C	0.92907	T068004M	0.96112	T068701B	0.91485
T067701D	0.92294	T068005B	0.85942	T068701C	0.92735
T067701E	0.89624	T068005C	0.83874	T068701D	0.93632
T067701M	0.94048	T068005M	0.95849	T068701E	0.92594
T067702B	0.85499	T068006B	0.85011	T068701M	0.96052
T067702C	0.88949	T068006C	0.84971	T068801B	0.94182
T067702D	0.87855	T068006M	0.96633	T068801C	0.94346
T067702E	0.87155	T068007B	0.87135	T068801D	0.93390
T067702M	0.86186	T068007C	0.89072	T068801M	0.93967
T067801B	0.89637	T068007M	0.97687	T068802B	0.88665
T067801C	0.91116	T068008B	0.83918	T068802C	0.88174
T067801M	0.90322	T068008C	0.84347	T068802D	0.88792
T067802B	0.88713	T068008M	0.97038	T068802M	0.90053
T067802C	0.87009	T068009B	0.87002	T068803B	0.88457
T067802M	0.98637	T068009C	0.89532	T068803C	0.89768
T067803B	0.84317	T068009M	0.96881	T068803D	0.91295
T067803C	0.86972	T068010B	0.83944	T068803M	0.94539
T067803M	0.97454	T068010C	0.84251	T068804B	0.86918
T067804B	0.86456	T068010M	0.98176	T068804C	0.87002
T067804C	0.86457	T068101B	0.88126	T068804D	0.84838
T067804M	0.97111	T068101C	0.90202	T068804M	0.94207

Table F-11 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T068805B	0.85811	T069305M	0.96611	T069706C	0.87492
T068805C	0.85848	T069401B	0.85749	T069706D	0.86492
T068805D	0.85192	T069401C	0.88641	T069706M	0.98366
T068805M	0.93758	T069401D	0.85588	T069707B	0.92659
T068901B	0.88472	T069401M	0.98276	T069707C	0.93421
T068901C	0.86594	T069402B	0.84664	T069707D	0.88344
T068901D	0.87604	T069402C	0.86750	T069707M	0.98208
T068901M	0.88940	T069402D	0.86680	T069708B	0.88270
T069001B	0.88164	T069402M	0.96939	T069708C	0.90700
T069001C	0.90496	T069403B	0.88400	T069708D	0.86970
T069001D	0.92194	T069403C	0.87911	T069708M	0.95587
T069001E	0.90294	T069403D	0.86670	T069709B	0.85068
T069001M	0.82750	T069403M	0.95569	T069709C	0.85902
T069101B	0.86697	T069404B	0.87198	T069709D	0.84510
T069101C	0.86942	T069404C	0.87720	T069709M	0.96059
T069101D	0.89327	T069404D	0.85927	T069710B	0.92799
T069101M	0.96819	T069404M	0.96024	T069710C	0.93689
T069102B	0.87824	T069405B	0.88151	T069710D	0.87260
T069102C	0.88728	T069405C	0.88641	T069710M	0.97289
T069102D	0.87428	T069405D	0.87953	T069711B	0.92262
T069102M	0.96243	T069405M	0.94995	T069711C	0.95441
T069103B	0.85461	T069501B	0.92444	T069711D	0.91382
T069103C	0.90190	T069501C	0.94369	T069711M	0.95331
T069103D	0.89215	T069501D	0.92058	T069712B	0.83198
T069103M	0.93193	T069501E	0.91236	T069712C	0.85442
T069201B	0.90004	T069501M	0.97210	T069712M	0.96675
T069201C	0.89637	T069601B	0.91200	T069713B	0.82208
T069201D	0.84135	T069601C	0.92208	T069713C	0.85395
T069201M	0.97099	T069601D	0.91847	T069713D	0.86333
T069202B	0.89286	T069601M	0.97545	T069713M	0.98084
T069202C	0.92617	T069701B	0.83457	T069714B	0.86699
T069202D	0.86317	T069701C	0.90406	T069714C	0.85480
T069202M	0.95665	T069701D	0.85529	T069714D	0.83243
T069203B	0.86042	T069701M	0.98195	T069714M	0.96263
T069203C	0.93868	T069702B	0.86943	T069715B	0.84536
T069203D	0.93149	T069702C	0.86740	T069715C	0.85736
T069203M	0.95789	T069702D	0.84351	T069715D	0.83461
T069301B	0.83612	T069702M	0.97892	T069715M	0.98831
T069301N	0.86309	T069703B	0.86222	T069716B	0.91405
T069301M	0.93524	T069703C	0.87878	T069716C	0.92772
T069302B	0.83455	T069703D	0.85522	T069716D	0.87145
T069302N	0.82860	T069703M	0.96861	T069716M	0.95593
T069302M	0.96376	T069704B	0.86485	T071801B	0.91846
T069303B	0.83123	T069704C	0.87358	T071801C	0.94173
T069303N	0.84808	T069704D	0.85963	T071801D	0.90655
T069303M	0.95870	T069704M	0.95860	T071801M	0.95558
T069304B	0.84150	T069705B	0.86964	T071802B	0.86560
T069304N	0.83710	T069705C	0.87066	T071802C	0.86835
T069304M	0.94913	T069705D	0.89535	T071802D	0.85177
T069305B	0.86577	T069705M	0.97685	T071802M	0.97358
T069305N	0.86645	T069706B	0.85941	T071803B	0.87959

Table F-11 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T071803C	0.91035	T071811C	0.94454	T070104B	0.91559
T071803D	0.87927	T071811D	0.91739	T070104C	0.93021
T071803M	0.94612	T071811M	0.94816	T070104D	0.87792
T071804B	0.91300	T071812B	0.87729	T070104M	0.96588
T071804C	0.93578	T071812C	0.87556	T070105B	0.88423
T071804D	0.93163	T071812D	0.84713	T070105C	0.88449
T071804M	0.95971	T071812M	0.97343	T070105D	0.90262
T071805B	0.90936	T071813B	0.86686	T070105M	0.92494
T071805C	0.92335	T071813C	0.88898	T070106B	0.89059
T071805D	0.87012	T071813D	0.85829	T070106C	0.92470
T071805M	0.97505	T071813M	0.94210	T070106D	0.89082
T071806B	0.90425	T069901B	0.86211	T070106M	0.95379
T071806C	0.90489	T069901C	0.87066	T070107B	0.88123
T071806D	0.87286	T069901D	0.85177	T070107C	0.86465
T071806M	0.96453	T069901M	0.92895	T070107D	0.86279
T071807B	0.87765	T069902B	0.89542	T070107M	0.95436
T071807C	0.88568	T069902C	0.94316	T070201B	0.90519
T071807D	0.85874	T069902D	0.89158	T070201C	0.88554
T071807M	0.97541	T069902M	0.94479	T070201D	0.90667
T071808B	0.89236	T069903B	0.90316	T070201M	0.93095
T071808C	0.92096	T069903C	0.93796	T070202B	0.84959
T071808D	0.87651	T069903D	0.95014	T070202C	0.88142
T071808M	0.97093	T069903M	0.92439	T070202D	0.84801
T071809B	0.85807	T070001B	0.86982	T070202M	0.96967
T071809C	0.84758	T070001C	0.91497	T070203B	0.90883
T071809D	0.86393	T070001D	0.90415	T070203C	0.92285
T071809M	0.98460	T070001M	0.96957	T070203D	0.86944
T071810B	0.91355	T070002B	0.88925	T070203M	0.96261
T071810C	0.94927	T070002C	0.93392	T070204B	0.85678
T071810D	0.91355	T070002D	0.91617	T070204C	0.87504
T071810M	0.95974	T070002M	0.95633	T070204D	0.87103
T071811B	0.91486	T070003B	0.84744	T070204M	0.96188
		T070003C	0.89197	T070301B	0.85697
		T070003D	0.87982	T070301C	0.86627
		T070003M	0.96527	T070301M	0.96018
		T070101B	0.87421	T070302B	0.83259
		T070101C	0.87423	T070302C	0.85804
		T070101D	0.86259	T070302M	0.96114
		T070101M	0.94915	T070303B	0.87447
		T070102B	0.85757	T070303C	0.88603
		T070102C	0.88006	T070304B	0.95233
		T070102D	0.86323	T070304C	0.95338
		T070102M	0.94312	T070304M	0.95960
		T070103B	0.86074	T070305B	0.85933
		T070103C	0.87860	T070305C	0.88833
		T070103D	0.85832	T070305M	0.95583
		T070103M	0.95284		

Table F-12

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.94661	G/T 25	0.94584	P/T 34	0.78194
BLACK	0.96558	G/T 26	0.68709	P/T 35	0.75112
HISPANIC	0.96553	G/T 27	0.69093	P/T 36	0.77901
ASIAN	0.95215	G/P 22	0.93422	P/T 37	0.96352
MEXICAN	0.91960	G/P 23	0.93744	P/T 41	0.76985
PUER RIC	0.96607	G/P 24	0.87824	P/T 42	0.76416
CUBN,OTH	0.87450	G/P 25	0.88667	P/T 43	0.80393
HISP-?	0.97747	G/S 22	0.92261	P/T 44	0.79532
MID CTY7	0.94264	G/S 23	0.89935	P/T 45	0.82287
FR/LCTY7	0.94421	R/T 24	0.90536	P/T 46	0.96243
FR/MCTY7	0.94556	R/T 25	0.89595	P/T 47	0.81089
LAR TWN7	0.92854	R/T 26	0.90876	P/T 51	0.80010
SML TWN7	0.93971	R/T 27	0.95978	P/T 52	0.84349
OTHER	0.95599	R/T 31	0.88617	P/T 53	0.81064
HS GRAD	0.96267	R/T 32	0.91207	P/T 54	0.79976
POST HS	0.96328	R/T 33	0.90618	P/T 55	0.96938
COL GRAD	0.96144	R/T 34	0.90245	P/T 56	0.86311
PARED-?	0.93476	R/T 35	0.89902	P/T 57	0.84892
S EAST	0.87198	R/T 36	0.93983	T/S 41	0.91801
CENTRAL	0.87166	R/T 37	0.90192	T/S 42	0.91589
WEST	0.87573	R/T 41	0.90608	T/S 43	0.92212
PRIVATE	0.93274	R/T 42	0.92051	T/S 51	0.91800
CATHOLIC	0.93455	R/T 43	0.90943	T/S 52	0.93588
BLACK	0.88134	R/T 44	0.92182	T/S 53	0.94130
HISPANIC	0.81521	R/T 45	0.90696	T/S 61	0.95095
ASIAN	0.79436	R/T 46	0.93349	T/S 62	0.94994
IEP-NO	0.97348	R/T 47	0.93938	T/S 63	0.92751
LEP-NO	0.92877	R/P 24	0.90633	T/S 71	0.93973
TITLE-N	0.77833	R/P 25	0.89485	T/S 72	0.94823
RED PRIC	0.93996	R/P 31	0.90079	T/S 73	0.95446
FREE	0.74009	R/P 32	0.83569	P/S 32	0.94226
INFO N/A	0.84808	R/P 33	0.89756	P/S 33	0.91772
SCH/REF	0.87891	R/P 34	0.87818	P/S 41	0.94035
SCH/NP	0.84629	R/P 35	0.88115	P/S 42	0.91872
TVLIN-0	0.94961	R/P 41	0.85856	P/S 43	0.91943
TV-QUAD	0.91447	R/P 42	0.95606	P/S 51	0.90359
HW-NO	0.92476	R/P 43	0.94963	P/S 52	0.95161
HW-YES	0.94085	R/P 44	0.93628	P/S 53	0.95076
HWLIN-0	0.97759	R/P 45	0.91340	A/G 22	0.89026
HWQUAD-0	0.88119	R/S 31	0.95498	A/R 22	0.92539
HITEM=3	0.97007	R/S 32	0.94850	A/R 23	0.93278
HITEM=4	0.97414	R/S 33	0.95766	A/R 24	0.95291
PGS>5	0.98220	R/S 41	0.94022	A/T 22	0.93779
PGS>10	0.88350	R/S 42	0.95639	A/T 23	0.92620
NO ACCOM	0.94327	R/S 43	0.94966	A/T 24	0.94563
G/R 22	0.90286	P/T 25	0.79536	A/T 25	0.96900
G/R 23	0.90353	P/T 26	0.77917	A/T 26	0.94574
G/R 24	0.95344	P/T 27	0.75310	A/T 27	0.93552
G/T 22	0.65101	P/T 31	0.96132		
G/T 23	0.67302	P/T 32	0.79327		
G/T 24	0.70261	P/T 33	0.77080		

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
A/P 22	0.88254	B001101C	0.94220	W802001C	0.86189
A/P 23	0.88767	B001101E	0.98280	W802001M	0.84764
A/P 24	0.89579	B014001B	0.86375	W802101B	0.87201
A/P 25	0.86127	B014001C	0.87116	W802101C	0.82708
A/S 22	0.96036	B014001D	0.92395	W802101M	0.85268
A/S 23	0.95533	B014001E	0.92569	W802201B	0.91565
A/L 22	0.93462	B014001M	0.85210	W802201C	0.90668
BLACK	0.93846	B007301B	0.97846	W802201M	0.80176
HISPANIC	0.92631	B007301C	0.97483	W802301B	0.86644
ASIAN AM	0.92732	B007301D	0.96774	W802301C	0.88457
AMER IND	0.98256	B007301M	0.86715	W802301D	0.88585
OTHER	0.98029	B007401B	0.88755	W802301M	0.84850
B003001M	0.78363	B007401C	0.90978	W802302B	0.94826
CUBAN	0.81279	B007401D	0.83162	W802302C	0.95658
B013001B	0.96577	B007401M	0.87453	W802302D	0.95654
B013001C	0.97007	B014101B	0.95714	W802302M	0.82947
B013001D	0.94980	B014101C	0.93103	W802303B	0.94838
B013001M	0.76508	B014101D	0.93204	W802303C	0.95111
B013101B	0.96528	B014101E	0.93498	W802303D	0.94664
B013101C	0.93964	B014101M	0.85435	W802303M	0.83561
B013101D	0.90162	W803001B	0.92952	W802304B	0.90187
B013101M	0.90891	W803001C	0.92383	W802304C	0.92516
B013201N	0.76658	W803001N	0.94511	W802304D	0.86249
B013201M	0.75574	W803001M	0.92639	W802304M	0.84491
B013301N	0.85926	W803101B	0.91984	W802401N	0.93143
B013301M	0.84967	W803101C	0.90501	W802401M	0.67206
B013401N	0.87705	W803101N	0.91101	W802501B	0.91219
B013401M	0.85205	W803101M	0.93378	W802501N	0.81814
B013501N	0.73347	W803201B	0.93943	W802501M	0.90306
B013501M	0.82160	W803201C	0.93556	W802502B	0.89036
B013601N	0.82035	W803201D	0.95094	W802502N	0.81601
B013601M	0.80263	W803201M	0.93149	W802502M	0.92333
B013701N	0.86618	W803301B	0.96249	W802503B	0.90806
B013701M	0.81955	W803301C	0.94772	W802503N	0.82979
B000901N	0.92345	W803301D	0.94960	W802503M	0.91775
B000901M	0.79416	W803301M	0.88146	W802504B	0.83948
B000903N	0.95912	W803302B	0.82412	W802504N	0.84315
B000903M	0.86335	W803302C	0.88534	W802504M	0.91388
B013801B	0.97054	W803302D	0.87476	W802601B	0.94454
B013801C	0.96675	W803302M	0.89607	W802601C	0.95295
B013801D	0.95719	W801901B	0.90776	W802601D	0.91351
B013801M	0.70136	W801901C	0.93338	W802601M	0.95295
B000905N	0.95000	W801901D	0.95806	W802602B	0.94668
B000905M	0.76176	W801901E	0.83696	W802602C	0.95759
B013901B	0.94143	W801901M	0.73473	W802602D	0.90626
B013901C	0.97109	W801902B	0.91588	W802602M	0.96109
B013901D	0.96319	W801902C	0.93931	W802603B	0.95597
B013901E	0.89520	W801902D	0.96286	W802603C	0.94960
B013901F	0.81022	W801902E	0.82782	W802603D	0.94618
B006601B	0.76974	W801902M	0.91800	W802603M	0.95046
B001101B	0.94798	W802001B	0.88700	C042701Y	0.89732

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C042701N	0.89067	C043007D	0.85538	C043101B	0.87979
C042701M	0.90787	C043007E	0.89918	C043101C	0.95042
C042801N	0.84823	C043007M	0.97825	C043101N	0.92271
C042801M	0.88553	C043008B	0.87230	C043102B	0.90042
C042802N	0.85380	C043008C	0.86978	C043102C	0.94278
C042802M	0.90074	C043008D	0.89959	C043102N	0.92442
C042803N	0.85012	C043008E	0.85921	C043103B	0.87988
C042803M	0.87914	C032402B	0.87890	C043103C	0.83820
C042901B	0.84718	C032402C	0.92404	C043104B	0.87059
C042901C	0.89157	C032402N	0.90186	C043104C	0.95597
C042901D	0.90275	C032402M	0.97889	C043104N	0.93616
C042901E	0.90891	C032401B	0.89958	C043104M	0.97196
C042901F	0.90742	C032401C	0.93714	C032502B	0.86905
C042901G	0.91647	C032401N	0.89560	C032502C	0.87972
C042901M	0.93899	C032401M	0.96949	C032502D	0.86048
C036601N	0.89563	C032404B	0.90128	C032502M	0.97302
C036601C	0.91860	C032404C	0.93633	C032503B	0.86855
C036601D	0.93658	C032404N	0.87873	C032503C	0.88579
C036601M	0.97577	C032404M	0.91689	C032503D	0.85768
C043001B	0.89613	C032407B	0.85349	C032503M	0.95608
C043001C	0.89276	C032407C	0.93390	C032505B	0.87498
C043001D	0.89252	C032407N	0.93360	C032505C	0.86911
C043001E	0.86841	C032407M	0.98299	C032505D	0.88326
C043001M	0.98100	C032408B	0.86917	C032505M	0.98148
C043002B	0.87730	C032408C	0.95583	C032506B	0.85928
C043002C	0.89394	C032408N	0.93414	C032506C	0.87143
C043002D	0.92748	C032408M	0.96908	C032506D	0.87099
C043002E	0.93065	C032409B	0.88682	C032506M	0.96447
C043002M	0.94991	C032409C	0.92443	C043201B	0.85313
C043003B	0.87642	C032409N	0.87582	C043201C	0.86118
C043003C	0.88996	C032409M	0.98238	C043201M	0.97937
C043003D	0.92978	C032410B	0.90137	C043301B	0.86449
C043003E	0.92170	C032410C	0.92180	C043301C	0.90593
C043003M	0.95769	C032410N	0.92916	C043301D	0.87467
C043004B	0.88362	C032410M	0.96667	C043301M	0.94035
C043004C	0.89224	C032411B	0.90358	C043401B	0.88293
C043004D	0.87216	C032411C	0.91706	C043401C	0.87598
C043004E	0.87858	C032411N	0.91739	C043401M	0.95163
C043004M	0.93718	C032411M	0.97183	C043501B	0.86924
C043005B	0.91853	C032412B	0.89369	C043501C	0.88925
C043005C	0.91301	C032412C	0.92611	C043501D	0.87246
C043005D	0.89974	C032412N	0.92988	C043501E	0.87177
C043005E	0.85741	C032412M	0.96969	C043501F	0.85545
C043005M	0.97338	C032413B	0.86877	C043501M	0.93702
C043006B	0.86642	C032413C	0.94101	C043601B	0.87087
C043006C	0.85143	C032413N	0.94437	C043601C	0.87334
C043006D	0.83848	C032413M	0.99620	C043601D	0.88511
C043006E	0.93592	C032414B	0.91972	C043601E	0.86323
C043006M	0.98184	C032414C	0.94444	C043601M	0.93473
C043007B	0.87506	C032414N	0.84435	C043701B	0.85126
C043007C	0.88642	C032414M	0.97385	C043701C	0.86978

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C043701D	0.88359	W802701B	0.89888	C043106B	0.85406
C043701E	0.86855	W802701C	0.89547	C043106C	0.93359
C043701M	0.95105	W802701D	0.92704	C043106N	0.93196
C038301N	0.85229	W802701M	0.74106	T067301B	0.83957
C038301M	0.93370	W802702B	0.93040	T067301C	0.84938
C043801B	0.87989	W802702C	0.94475	T067301D	0.91768
C043801C	0.88766	W802702D	0.92825	T067301M	0.95107
C043801D	0.89818	W802702M	0.71688	T056201B	0.87839
C043801E	0.90364	W802703B	0.96893	T056201C	0.88036
C043801F	0.89864	W802703C	0.96751	T056201D	0.89958
C043801G	0.89697	W802703D	0.95889	T056201E	0.87976
C043801H	0.86359	W802703M	0.84590	T056201F	0.89172
C043801M	0.87100	W802801B	0.95561	T056201M	0.91283
C043901N	0.92886	W802801C	0.95051	T056301B	0.92037
C043901M	0.94739	W802801D	0.95622	T056301C	0.94088
C044001B	0.87877	W802801M	0.83618	T056301D	0.95143
C044001C	0.87273	W802802B	0.96817	T056301E	0.87433
C044001D	0.88778	W802802C	0.96612	T056301F	0.92160
C044001E	0.87528	W802802D	0.96690	T056301G	0.91174
C044001F	0.85709	W802802M	0.86555	T056301M	0.97625
C044001G	0.85445	W802803B	0.96754	T067501B	0.85261
C044001H	0.90004	W802803C	0.97064	T067501C	0.88442
C044001M	0.93396	W802803D	0.96695	T067501M	0.88964
C044002B	0.89004	W802803M	0.86795	T067502B	0.86645
C044002C	0.89629	W802804B	0.96484	T067502C	0.84515
C044002D	0.89123	W802804C	0.95473	T067502M	0.88668
C044002E	0.89697	W802804D	0.95664	T067503B	0.83799
C044002F	0.91439	W802804M	0.88140	T067503C	0.95583
C044002G	0.87621	W802901B	0.92806	T067503M	0.97058
C044002H	0.90692	W802901C	0.91508	T067504B	0.88605
C044002M	0.93327	W802901D	0.87903	T067504C	0.98004
C044003B	0.87699	W802901M	0.85621	T067504M	0.98659
C044003C	0.86400	W802902B	0.92304	T067505B	0.86750
C044003D	0.87821	W802902C	0.93706	T067505C	0.97839
C044003E	0.90093	W802902D	0.91134	T067505M	0.98940
C044003F	0.90964	W802902M	0.88452	T067506B	0.84356
C044003H	0.88841	W802903B	0.93665	T067506C	0.96503
C044003M	0.93569	W802903C	0.94540	T067506M	0.98433
C044004B	0.87530	W802903D	0.93725	T067507B	0.83834
C044004C	0.89628	W802903M	0.86053	T067507C	0.97067
C044004D	0.88137	W802904B	0.93143	T067507M	0.97048
C044004E	0.86359	W802904C	0.91749	T067508B	0.87951
C044004F	0.91819	W802904D	0.92251	T067508C	0.85544
C044004G	0.91939	W802904M	0.86137	T067508M	0.86549
C044004H	0.86732	C044401N	0.87684	T067509B	0.87797
C044004M	0.93692	C044401M	0.95448	T067509C	0.87634
B014201B	0.98409	C044402N	0.87273	T067509M	0.94153
B014201C	0.98763	C044402M	0.91770	T067510B	0.87919
B014201D	0.98058	C043105B	0.86622	T067510C	0.89396
B014201E	0.97283	C043105C	0.93297	T067510M	0.91549
B014201M	0.91004	C043105N	0.94465	T067511B	0.86062

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T067511C	0.95614	T067801B	0.88071	T068007M	0.98750
T067511M	0.96183	T067801C	0.90396	T068008B	0.84947
T067512B	0.85895	T067801M	0.93671	T068008C	0.84404
T067512C	0.86721	T067802B	0.85972	T068008M	0.98765
T067512M	0.85366	T067802C	0.87116	T068009B	0.86387
T067601B	0.87026	T067802M	0.98913	T068009C	0.90066
T067601C	0.90157	T067803B	0.82403	T068009M	0.99622
T067601M	0.92397	T067803C	0.84618	T068010B	0.83191
T067602B	0.84654	T067803M	0.98537	T068010C	0.84792
T067602C	0.86685	T067804B	0.87206	T068010M	0.99599
T067602M	0.89927	T067804C	0.86377	T046101N	0.89270
T067603B	0.85275	T067804M	0.98928	T046101M	0.95382
T067603C	0.94980	T067805B	0.89025	T046201B	0.85771
T067603M	0.97145	T067805C	0.90628	T046201C	0.85866
T067604B	0.86700	T067805M	0.98697	T046201D	0.89745
T067604C	0.97658	T067806B	0.89071	T046201M	0.96838
T067604M	0.97469	T067806C	0.88991	T068201B	0.84552
T067605B	0.85947	T067806M	0.99115	T068201C	0.87075
T067605C	0.91921	T067807B	0.81887	T068201D	0.88386
T067605M	0.96487	T067807C	0.88629	T068201E	0.92090
T067606B	0.86459	T067807M	0.99189	T068201M	0.95251
T067606C	0.92165	T041201B	0.87850	T068301B	0.86404
T067606M	0.96015	T041201C	0.89308	T068301C	0.88676
T067607B	0.89239	T041201D	0.91231	T068301D	0.87705
T067607C	0.96034	T041201M	0.97595	T068301E	0.91016
T067607M	0.96743	T067901B	0.85343	T068301M	0.91549
T067608B	0.85734	T067901C	0.84191	T068401B	0.84871
T067608C	0.87551	T067901M	0.98325	T068401C	0.90742
T067608M	0.91322	T067902B	0.83396	T068401D	0.89942
T067609B	0.84194	T067902C	0.84546	T068401E	0.89865
T067609C	0.88535	T067902M	0.98566	T068401F	0.86436
T067609M	0.94409	T068001B	0.82011	T068401G	0.84571
T067610B	0.85923	T068001C	0.82408	T068401M	0.90825
T067610C	0.97160	T068001M	0.98688	T068601B	0.87331
T067610M	0.97362	T068002B	0.82030	T068601C	0.88078
T067611B	0.88367	T068002C	0.85148	T068601D	0.89409
T067611C	0.98773	T068002M	0.98478	T068601M	0.97031
T067611M	0.99138	T068003B	0.82848	T068701B	0.89543
T067612B	0.89447	T068003C	0.84027	T068701C	0.90153
T067612C	0.87396	T068003M	0.98791	T068701D	0.91409
T067612M	0.88270	T068004B	0.84674	T068701E	0.88036
T067701B	0.86855	T068004C	0.84392	T068701M	0.96945
T067701C	0.91022	T068004M	0.98457	T068801B	0.89312
T067701D	0.88319	T068005B	0.87827	T068801C	0.92174
T067701E	0.86477	T068005C	0.87712	T068801D	0.94023
T067701M	0.95154	T068005M	0.98428	T068801M	0.95602
T067702B	0.83376	T068006B	0.85722	T068802B	0.87659
T067702C	0.87290	T068006C	0.86806	T068802C	0.89730
T067702D	0.88936	T068006M	0.99086	T068802D	0.93538
T067702E	0.92572	T068007B	0.88934	T068802M	0.95274
T067702M	0.84114	T068007C	0.91059	T068803B	0.88648

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T068803C	0.87416	T069303N	0.81904	T069704D	0.89868
T068803D	0.93232	T069303M	0.96046	T069704M	0.98014
T068803M	0.94621	T069304B	0.83574	T069705B	0.84219
T068804B	0.82483	T069304N	0.84706	T069705C	0.86474
T068804C	0.84462	T069304M	0.95989	T069705D	0.83502
T068804D	0.83317	T069305B	0.89219	T069705M	0.98056
T068804M	0.95518	T069305N	0.90396	T069706B	0.86319
T068805B	0.88829	T069305M	0.94628	T069706C	0.88263
T068805C	0.89687	T069401B	0.83343	T069706D	0.87067
T068805D	0.89585	T069401C	0.86227	T069706M	0.97545
T068805M	0.95002	T069401D	0.82789	T069707B	0.87434
T068901B	0.89339	T069401M	0.97887	T069707C	0.94113
T068901C	0.89247	T069402B	0.83341	T069707D	0.87336
T068901D	0.90538	T069402C	0.87815	T069707M	0.96837
T068901M	0.91183	T069402D	0.82362	T069708B	0.87006
T069001B	0.86972	T069402M	0.98311	T069708C	0.89205
T069001C	0.87273	T069403B	0.85822	T069708D	0.84870
T069001D	0.86983	T069403C	0.88693	T069708M	0.97585
T069001E	0.85755	T069403D	0.85280	T069709B	0.85614
T069001M	0.89899	T069403M	0.97714	T069709C	0.85361
T069101B	0.86136	T069404B	0.87867	T069709D	0.85051
T069101C	0.85369	T069404C	0.92396	T069709M	0.98092
T069101D	0.81501	T069404D	0.93008	T069710B	0.90041
T069101M	0.95723	T069404M	0.98101	T069710C	0.91698
T069102B	0.87330	T069405B	0.87326	T069710D	0.84552
T069102C	0.90801	T069405C	0.91111	T069710M	0.98168
T069102D	0.87506	T069405D	0.92317	T069711B	0.87361
T069102M	0.94290	T069405M	0.98198	T069711C	0.93865
T069103B	0.87942	T069501B	0.87475	T069711D	0.92797
T069103C	0.90651	T069501C	0.93045	T069711M	0.96846
T069103D	0.89708	T069501D	0.91542	T069712B	0.81506
T069103M	0.92891	T069501E	0.88622	T069712C	0.83490
T069201B	0.88045	T069501M	0.98356	T069712D	0.84536
T069201C	0.90744	T069601B	0.88519	T069712M	0.98163
T069201D	0.85381	T069601C	0.87986	T069713B	0.84673
T069201M	0.96654	T069601D	0.88327	T069713C	0.85435
T069202B	0.89412	T069601M	0.98136	T069713D	0.83985
T069202C	0.92740	T069701B	0.83827	T069713M	0.97682
T069202D	0.87159	T069701C	0.84762	T069714B	0.86334
T069202M	0.96866	T069701D	0.85643	T069714C	0.87423
T069203B	0.86070	T069701M	0.97579	T069714D	0.86297
T069203C	0.91553	T069702B	0.86453	T069714M	0.98114
T069203D	0.87698	T069702C	0.88530	T069715B	0.86764
T069203M	0.96854	T069702D	0.84067	T069715C	0.87707
T069301B	0.83096	T069702M	0.98235	T069715D	0.84827
T069301N	0.85082	T069703B	0.86537	T069715M	0.98670
T069301M	0.96560	T069703C	0.88337	T069716B	0.88361
T069302B	0.84615	T069703D	0.83176	T069716C	0.91563
T069302N	0.82458	T069703M	0.98173	T069716D	0.86383
T069302M	0.97483	T069704B	0.87854	T069716M	0.98800
T069303B	0.83905	T069704C	0.91263	T069901B	0.86189

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T069901C	0.86555	T070201B	0.89810	T071702M	0.89586
T069901D	0.86308	T070201C	0.89895	T071703B	0.88759
T069901M	0.93321	T070201D	0.90938	T071703C	0.90713
T069902B	0.90240	T070201M	0.96203	T071703D	0.90089
T069902C	0.92937	T070202B	0.83722	T071703E	0.91646
T069902D	0.85062	T070202C	0.87135	T071703F	0.93441
T069902M	0.96394	T070202D	0.82983	T071703M	0.92296
T069903B	0.85544	T070202M	0.97549	T071704B	0.88512
T069903C	0.91671	T070203B	0.88974	T071704C	0.87127
T069903D	0.92503	T070203C	0.90493	T071704D	0.88691
T069903M	0.93127	T070203D	0.84204	T071704E	0.86799
T070001B	0.85674	T070203M	0.97840	T071704F	0.83767
T070001C	0.88172	T070204B	0.88004	T071704M	0.92361
T070001D	0.91374	T070204C	0.89354	T067703B	0.83305
T070001M	0.97513	T070204D	0.88058	T067703C	0.87394
T070002B	0.86443	T070204M	0.97151	T067703D	0.87331
T070002C	0.92673	T070301B	0.81244	T067703E	0.86008
T070002D	0.90360	T070301C	0.84857	T067703M	0.88685
T070002M	0.97497	T070301M	0.96689	T068501N	0.90370
T070003B	0.87021	T070302B	0.81779	T068501M	0.94391
T070003C	0.88776	T070302C	0.81995	T069801B	0.89045
T070003D	0.90116	T070302M	0.97257	T069801C	0.86076
T070003M	0.96567	T070303B	0.80471	T069801M	0.98477
T070101B	0.86169	T070303C	0.83331	T069802B	0.81329
T070101C	0.87982	T070303M	0.96282	T069802C	0.75937
T070101D	0.85749	T070304B	0.92411	T069802M	0.98496
T070101M	0.96634	T070304C	0.92763	T069803B	0.84238
T070102B	0.85137	T070304M	0.96255	T069803C	0.82304
T070102C	0.86988	T070305B	0.82927	T069803M	0.96887
T070102D	0.84615	T070305C	0.83583	T069804B	0.87458
T070102M	0.97370	T070305M	0.97180	T069804C	0.87791
T070103B	0.83782	T071601M	0.87751	T069804M	0.98188
T070103C	0.85804	T071602M	0.87675	T069805B	0.83246
T070103D	0.84296	T071603M	0.85916	T069805C	0.81049
T070103M	0.97729	T071604M	0.84677	T069805M	0.98343
T070104B	0.89124	T040301B	0.86109	T069806B	0.82430
T070104C	0.92323	T040301C	0.88232	T069806C	0.84908
T070104D	0.84465	T040301D	0.90198	T069806M	0.97607
T070104M	0.97945	T040301E	0.92247	T069807B	0.82876
T070105B	0.88359	T040301M	0.98638	T069807C	0.83968
T070105C	0.89372	T071701B	0.86168	T069807M	0.98089
T070105D	0.90471	T071701C	0.84052	T069808B	0.81602
T070105M	0.97147	T071701D	0.86143	T069808C	0.81800
T070106B	0.89098	T071701E	0.87232		
T070106C	0.91028	T071701F	0.86893		
T070106D	0.86329	T071701M	0.87858		
T070106M	0.97551	T071702B	0.88509		
T070107B	0.87282	T071702C	0.89586		
T070107C	0.87397	T071702D	0.89948		
T070107D	0.88049	T071702E	0.91200		
T070107M	0.97457	T071702F	0.90780		

Table F-12 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T069808M	0.98044	T069812M	0.97738		
T069809C	0.79717	T069813B	0.82007		
T069809M	0.98744	T069813C	0.80599		
T069810B	0.89154	T069813M	0.97496		
T069810C	0.89129	CLASIZ-2	0.87538		
T069810M	0.97984	CLASIZ-3	0.89403		
T069811B	0.88805	CLASIZ-4	0.89068		
T069811C	0.89076	CLASIZ-5	0.91377		
T069812B	0.83209	CLASIZ-?	0.82560		
T069812C	0.82252				

Table F-13

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Writing Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.95191	G/T 25	0.95448	P/T 34	0.77342
BLACK	0.97176	G/T 26	0.63907	P/T 35	0.75955
HISPANIC	0.96968	G/T 27	0.67636	P/T 36	0.79693
ASIAN	0.95122	G/P 22	0.90655	P/T 37	0.95866
MEXICAN	0.91458	G/P 23	0.95319	P/T 41	0.77232
PUER RIC	0.98254	G/P 24	0.88805	P/T 42	0.75929
CUBN,OTH	0.87055	G/P 25	0.89935	P/T 43	0.79580
HISP-?	0.98494	G/S 22	0.93711	P/T 44	0.77919
MID CTY7	0.94952	G/S 23	0.89789	P/T 45	0.82047
FR/LCTY7	0.94425	R/T 24	0.89480	P/T 46	0.95540
FR/MCTY7	0.95569	R/T 25	0.89764	P/T 47	0.79580
LAR TWN7	0.93424	R/T 26	0.90073	P/T 51	0.78604
SML TWN7	0.94516	R/T 27	0.96902	P/T 52	0.89744
OTHER	0.94788	R/T 31	0.88755	P/T 53	0.88735
HS GRAD	0.96649	R/T 32	0.91133	P/T 54	0.88052
POST HS	0.96295	R/T 33	0.90780	P/T 55	0.94611
COL GRAD	0.96388	R/T 34	0.90602	P/T 56	0.89421
PARED-?	0.91645	R/T 35	0.90900	P/T 57	0.88316
S EAST	0.83206	R/T 36	0.94774	T/S 41	0.92944
CENTRAL	0.86784	R/T 37	0.91487	T/S 42	0.90570
WEST	0.88792	R/T 41	0.91470	T/S 43	0.93045
PRIVATE	0.94171	R/T 42	0.91708	T/S 51	0.91351
CATHOLIC	0.95350	R/T 43	0.90972	T/S 52	0.95495
BLACK	0.88449	R/T 44	0.91447	T/S 53	0.96623
HISPANIC	0.83305	R/T 45	0.92336	T/S 61	0.96194
ASIAN	0.82226	R/T 46	0.93910	T/S 62	0.94465
IEP-NO	0.97310	R/T 47	0.94418	T/S 63	0.91433
LEP-NO	0.92591	R/P 24	0.89572	T/S 72	0.93438
TITLE-N	0.76425	R/P 25	0.89043	P/S 32	0.95402
RED PRIC	0.96441	R/P 31	0.90062	P/S 33	0.92006
FREE	0.80303	R/P 32	0.80518	P/S 41	0.94693
INFO N/A	0.86893	R/P 33	0.88953	P/S 42	0.90868
SCH/REF	0.90665	R/P 34	0.88968	P/S 43	0.92761
SCH/NP	0.79840	R/P 35	0.89324	P/S 51	0.89767
TVLIN-0	0.93768	R/P 41	0.87959	P/S 52	0.94960
TV-QUAD	0.89662	R/P 42	0.93830	P/S 53	0.93069
HW-NO	0.95069	R/P 43	0.94026	A/G 22	0.92198
HW-YES	0.95814	R/P 44	0.93243	A/R 22	0.95962
HWLIN-0	0.97578	R/P 45	0.88694	A/R 23	0.95572
HWQUAD-0	0.86446	R/S 31	0.95490	A/R 24	0.96444
HITEM=3	0.97549	R/S 32	0.93665	A/T 22	0.93870
HITEM=4	0.97572	R/S 33	0.95220	A/T 23	0.92890
PGS>5	0.98466	R/S 41	0.93590	A/T 24	0.94144
PGS>10	0.85578	R/S 42	0.96289	A/T 25	0.94950
NO ACCOM	0.93137	R/S 43	0.95176	A/T 26	0.93557
G/R 22	0.90774	P/T 25	0.82763	A/T 27	0.93203
G/R 23	0.91202	P/T 26	0.81483	A/P 22	0.92628
G/R 24	0.95197	P/T 27	0.82958	A/P 23	0.92823
G/T 22	0.66599	P/T 31	0.95840		
G/T 23	0.69281	P/T 32	0.82433		
G/T 24	0.68631	P/T 33	0.79431		

Table F-13 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
A/P 24	0.92783	B001101E	0.98571	W802001M	0.89624
A/P 25	0.89837	B014001B	0.86017	W802101B	0.86760
A/S 22	0.96452	B014001C	0.88125	W802101C	0.80383
A/S 23	0.96358	B014001D	0.92208	W802101M	0.91373
A/I 22	0.97985	B014001E	0.94246	W802201B	0.93042
A/L 22	0.93412	B014001M	0.83626	W802201C	0.92368
BLACK	0.93702	B007301B	0.98061	W802201M	0.85049
HISPANIC	0.93948	B007301C	0.98657	W802301B	0.93064
ASIAN AM	0.91725	B007301D	0.96817	W802301C	0.94163
AMER IND	0.98647	B007301M	0.87175	W802301D	0.91024
OTHER	0.98425	B007401B	0.88867	W802301M	0.89747
B003001M	0.68217	B007401C	0.91040	W802302B	0.96402
CUBAN	0.86313	B007401D	0.85538	W802302C	0.96862
B013001B	0.89864	B007401M	0.87001	W802302D	0.96780
B013001C	0.87917	B014101B	0.96053	W802302M	0.88117
B013001D	0.88350	B014101C	0.92954	W802303B	0.94433
B013001M	0.81963	B014101D	0.92684	W802303C	0.94517
B013101B	0.95567	B014101E	0.93252	W802303D	0.94166
B013101C	0.91583	B014101M	0.88114	W802303M	0.87178
B013101D	0.85166	W803001B	0.98270	W802304B	0.90348
B013101M	0.79184	W803001C	0.97037	W802304C	0.92289
B013201N	0.64460	W803001N	0.97029	W802304D	0.86787
B013201M	0.77834	W803001M	0.94667	W802304M	0.86904
B013301N	0.80361	W803101B	0.95798	W802401N	0.94667
B013301M	0.81536	W803101C	0.95520	W802401M	0.64851
B013401N	0.84191	W803101N	0.94996	W802501B	0.91833
B013401M	0.81605	W803101M	0.96753	W802501N	0.85621
B013501N	0.67696	W803201B	0.93958	W802501M	0.90539
B013501M	0.79235	W803201C	0.93643	W802502B	0.92895
B013601N	0.81178	W803201D	0.95257	W802502N	0.79915
B013601M	0.80117	W803201M	0.96624	W802502M	0.90534
B013701N	0.83749	W803301B	0.97630	W802503B	0.95808
B013701M	0.80360	W803301C	0.96456	W802503N	0.81966
B000901N	0.96433	W803301D	0.95987	W802503M	0.90363
B000901M	0.73071	W803301M	0.94777	W802504B	0.83457
B000903N	0.97988	W803302B	0.80828	W802504N	0.82091
B000903M	0.73698	W803302C	0.89343	W802504M	0.89326
B013801B	0.97331	W803302D	0.89770	W802601B	0.95631
B013801C	0.96741	W803302M	0.95418	W802601C	0.95092
B013801D	0.96095	W801901B	0.88601	W802601D	0.91965
B013801M	0.84009	W801901C	0.93350	W802601M	0.94306
B000905N	0.97595	W801901D	0.95001	W802602B	0.95695
B000905M	0.73051	W801901E	0.80213	W802602C	0.95836
B013901B	0.91819	W801901M	0.86018	W802602D	0.91680
B013901C	0.96699	W801902B	0.91002	W802602M	0.95276
B013901D	0.95802	W801902C	0.93969	W802603B	0.95833
B013901E	0.89002	W801902D	0.96184	W802603C	0.94324
B013901F	0.84370	W801902E	0.81435	W802603D	0.94744
B006601B	0.83069	W801902M	0.65089	W802603M	0.94351
B001101B	0.95031	W802001B	0.87361	C042701Y	0.87813
B001101C	0.95099	W802001C	0.81842	C042701N	0.86569

Table F-13 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C042701M	0.96720	C043008B	0.85753	C043103C	0.78842
C042801N	0.81872	C043008C	0.82481	C043104B	0.87388
C042801M	0.85451	C043008D	0.97642	C043104C	0.94250
C042802N	0.87761	C043008E	0.94378	C043104N	0.91392
C042802M	0.86338	C043008M	0.95598	C032502B	0.84781
C042803N	0.84402	C032402B	0.88789	C032502C	0.88585
C042803M	0.84935	C032402C	0.93685	C032502M	0.94373
C042901B	0.86136	C032402N	0.89208	C032503B	0.85869
C042901C	0.89016	C032401B	0.92219	C032503C	0.87014
C042901D	0.88673	C032401C	0.92963	C032503D	0.87569
C042901E	0.90692	C032401N	0.86076	C032505B	0.83084
C042901F	0.93052	C032404B	0.87548	C032505C	0.86525
C042901G	0.94360	C032404C	0.95252	C032505D	0.85202
C036601N	0.89002	C032404N	0.88986	C032506B	0.86257
C036601C	0.93340	C032407B	0.85807	C032506C	0.87019
C036601D	0.95768	C032407C	0.95357	C032506D	0.86451
C036601M	0.95728	C032407N	0.94890	C032506M	0.97741
C043001B	0.87014	C032408B	0.83815	C043201B	0.84737
C043001C	0.89843	C032408C	0.94707	C043201C	0.87660
C043001D	0.90806	C032408N	0.92798	C043201M	0.97183
C043001E	0.84881	C032408M	0.95697	C043301B	0.91850
C043001M	0.97614	C032409B	0.90491	C043301C	0.91474
C043002B	0.88585	C032409C	0.92364	C043301D	0.87307
C043002C	0.91434	C032409N	0.88757	C043301E	0.87186
C043002D	0.94461	C032409M	0.96381	C043301M	0.93772
C043002E	0.89961	C032410B	0.87629	C043401B	0.87590
C043002M	0.99570	C032410C	0.89200	C043401C	0.86120
C043003B	0.90854	C032410N	0.85160	C043401D	0.86822
C043003C	0.91455	C032410M	0.98536	C043401M	0.97698
C043003D	0.92692	C032411B	0.90092	C043501B	0.90100
C043003E	0.89097	C032411C	0.91579	C043501C	0.88759
C043003M	0.98973	C032411N	0.86160	C043501D	0.88932
C043004B	0.88883	C032412B	0.89146	C043501E	0.89145
C043004C	0.90655	C032412C	0.91086	C043501F	0.88885
C043004D	0.86373	C032412N	0.87010	C043501M	0.93992
C043004E	0.84631	C032413B	0.85753	C043601B	0.85691
C043004M	0.98080	C032413C	0.94046	C043601C	0.89233
C043005B	0.91094	C032413N	0.92405	C043601D	0.86657
C043005C	0.93580	C032413M	0.97191	C043601E	0.87158
C043005D	0.90155	C032414B	0.90509	C043601M	0.94222
C043005E	0.85800	C032414C	0.96253	C043701B	0.85650
C043005M	0.99388	C032414N	0.87869	C043701C	0.86238
C043006B	0.86458	C032414M	0.96145	C043701D	0.85697
C043006C	0.85563	C043101B	0.89825	C043701E	0.84955
C043006D	0.87894	C043101C	0.96027	C038301N	0.81749
C043006E	0.96595	C043101N	0.88984	C038301M	0.95604
C043007B	0.87712	C043101M	0.95906	C043801B	0.86754
C043007C	0.87248	C043102B	0.89548	C043801C	0.89972
C043007D	0.87101	C043102C	0.93504	C043801D	0.93389
C043007E	0.89861	C043102N	0.91840	C043801E	0.93060
C043007M	0.98611	C043103B	0.83413	C043801F	0.88368

Table F-13 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Writing Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C043801G	0.87464	W802701D	0.92479	C043106B	0.88822
C043801H	0.83844	W802702B	0.94485	C043106C	0.91695
C043801M	0.85464	W802702C	0.95692	C043106N	0.85095
C043901N	0.92420	W802702D	0.95185	C043106M	0.97074
C043901M	0.90697	W802702M	0.74565	B005501B	0.97399
C044001B	0.88371	W802703B	0.97828	B005501C	0.95883
C044001C	0.91163	W802703C	0.97835	B005501E	0.98563
C044001D	0.87181	W802703D	0.96718	B005501F	0.98376
C044001E	0.84221	W802703M	0.81986	B005501M	0.78954
C044001F	0.87104	W802801B	0.94419	B014301Y	0.87214
C044001G	0.83233	W802801C	0.94155	B014301N	0.81898
C044001H	0.85688	W802801D	0.95321	B014301M	0.82186
C044001M	0.81136	W802801M	0.88440	B014401B	0.95539
C044002B	0.88206	W802802B	0.95012	B014401C	0.94214
C044002C	0.88100	W802802C	0.94973	B014401D	0.93044
C044002D	0.89204	W802802D	0.95809	B014401E	0.90919
C044002E	0.87685	W802802M	0.88891	B014401F	0.89598
C044002F	0.91448	W802803B	0.97998	B014401M	0.84688
C044002G	0.87670	W802803C	0.98055	C044301N	0.85451
C044002H	0.92619	W802803D	0.97590	C044301M	0.96673
C044002M	0.90458	W802803M	0.87974	C044302N	0.86717
C044003B	0.85647	W802804B	0.97096	C044302M	0.87427
C044003C	0.87253	W802804C	0.96462	C044101B	0.86328
C044003D	0.88227	W802804D	0.95922	C044101C	0.85223
C044003E	0.89597	W802804M	0.87862	C044101D	0.86840
C044003F	0.91786	W802901B	0.92886	C044101E	0.86170
C044003G	0.89528	W802901C	0.93543	C044101M	0.96084
C044003H	0.89558	W802901D	0.86545	C044201B	0.84719
C044003M	0.91147	W802901M	0.88042	C044201C	0.88552
C044004B	0.87446	W802902B	0.82731	C044201D	0.95126
C044004C	0.89771	W802902C	0.95189	C044201E	0.92083
C044004D	0.89038	W802902D	0.91204	C044201F	0.90288
C044004E	0.90561	W802902M	0.88611	C044201G	0.86707
C044004F	0.90098	W802903B	0.91812	C044201H	0.84178
C044004G	0.90143	W802903C	0.95341	C044201M	0.90978
C044004H	0.89120	W802903D	0.93278	C044202B	0.86966
C044004M	0.85854	W802903M	0.85832	C044202C	0.86046
W802701B	0.91595	W802904B	0.95147	C044202D	0.90422
W802701C	0.91604	W802904C	0.92835	C044202E	0.93946
		W802904D	0.93152	C044202F	0.93307
		W802904M	0.87692	C044202G	0.87028
		C043105B	0.89449	C044202H	0.87040
		C043105C	0.91272	C044202M	0.93691
		C043105N	0.85971		
		C043105M	0.95607		

Table F-14

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Civics Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.94713	G/T 25	0.96351	P/T 34	0.75028
BLACK	0.96088	G/T 26	0.72013	P/T 35	0.72884
HISPANIC	0.95935	G/T 27	0.74267	P/T 36	0.79400
ASIAN	0.90748	G/P 22	0.91743	P/T 37	0.97406
MEXICAN	0.90975	G/P 23	0.93189	P/T 41	0.73385
PUER RIC	0.95216	G/P 24	0.77884	P/T 42	0.74621
CUBN,OTH	0.96079	G/P 25	0.93914	P/T 43	0.83987
HISP-?	0.89772	G/S 22	0.91477	P/T 44	0.88500
MID CTY7	0.94436	G/S 23	0.86972	P/T 45	0.89341
FR/LCTY7	0.94835	R/T 24	0.91636	P/T 46	0.97601
FR/MCTY7	0.94908	R/T 25	0.91980	P/T 47	0.85350
LAR TWN7	0.94576	R/T 26	0.93077	P/T 51	0.83025
SML TWN7	0.94899	R/T 27	0.96912	P/T 52	0.76737
OTHER	0.95791	R/T 31	0.91828	P/T 53	0.76172
HS GRAD	0.96032	R/T 32	0.91827	P/T 54	0.83939
POST HS	0.95648	R/T 33	0.90122	P/T 55	0.95889
COL GRAD	0.95772	R/T 34	0.89684	P/T 56	0.74170
PARED-?	0.95512	R/T 35	0.89922	T/S 41	0.91994
S EAST	0.86469	R/T 36	0.94836	T/S 42	0.90282
CENTRAL	0.86157	R/T 37	0.90449	T/S 43	0.91969
WEST	0.85987	R/T 41	0.89402	T/S 51	0.90334
PRIVATE	0.94768	R/T 42	0.93523	T/S 52	0.93151
CATHOLIC	0.95176	R/T 43	0.92777	T/S 53	0.91947
BLACK	0.84289	R/T 44	0.93263	T/S 61	0.95322
HISPANIC	0.74401	R/T 45	0.93153	T/S 62	0.94493
ASIAN	0.74957	R/T 46	0.94197	T/S 63	0.92526
IEP-NO	0.96591	R/T 47	0.94124	T/S 71	0.92384
LEP-NO	0.90986	R/P 24	0.92119	T/S 72	0.95025
TITLE-N	0.77394	R/P 25	0.91233	T/S 73	0.95198
RED PRIC	0.93504	R/P 31	0.90923	P/S 32	0.95037
FREE	0.77910	R/P 32	0.90198	P/S 33	0.91175
INFO N/A	0.88398	R/P 33	0.89725	P/S 41	0.93641
SCH/REF	0.88457	R/P 34	0.89484	P/S 42	0.90460
SCH/NP	0.85016	R/P 35	0.88130	P/S 43	0.93109
TVLIN-0	0.98046	R/P 41	0.90628	P/S 51	0.91165
TV-QUAD	0.98029	R/P 42	0.97218	P/S 52	0.94396
HW-NO	0.97303	R/P 43	0.97057	P/S 53	0.91978
HW-YES	0.97575	R/P 44	0.94622	A/G 22	0.88118
HWLIN-0	0.98636	R/P 45	0.95353	A/R 22	0.93288
HWQUAD-0	0.96491	R/S 31	0.95496	A/R 23	0.92886
HITEM=3	0.96860	R/S 32	0.95141	A/R 24	0.95617
HITEM=4	0.96988	R/S 33	0.95826	A/T 22	0.92170
PGS>5	0.83742	R/S 41	0.93514	A/T 23	0.91766
PGS>10	0.84326	R/S 42	0.95311	A/T 24	0.94266
NO ACCOM	0.94013	R/S 43	0.95911	A/T 25	0.97252
G/R 22	0.90826	P/T 25	0.79537	A/T 26	0.93573
G/R 23	0.90095	P/T 26	0.78361	A/T 27	0.93337
G/R 24	0.96422	P/T 27	0.76262	A/P 22	0.88935
G/T 22	0.72229	P/T 31	0.96411		
G/T 23	0.77473	P/T 32	0.73256		
G/T 24	0.76794	P/T 33	0.74005		

Table F-14 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
A/P 23	0.86753	B007301D	0.90383	P803702N	0.90253
A/P 24	0.87932	B007301M	0.79449	P803702M	0.81668
A/P 25	0.83208	B007401B	0.87854	P803703N	0.86673
A/S 22	0.96461	B007401C	0.92715	P803703M	0.82883
A/S 23	0.95663	B007401D	0.85988	P803704N	0.93512
A/I 22	0.97439	B007401M	0.85865	P803704M	0.78633
A/L 22	0.93452	B014101B	0.90182	P803705N	0.90226
BLACK	0.92379	B014101C	0.90820	P803705M	0.81688
HISPANIC	0.81294	B014101D	0.93268	P803706N	0.86565
ASIAN AM	0.87182	B014101E	0.93393	P803706M	0.77149
AMER IND	0.96403	B014101M	0.85480	P803707N	0.89538
OTHER	0.96717	P804001B	0.87582	P803707M	0.83896
B003001M	0.79543	P804001C	0.85619	P803708N	0.86305
B013001B	0.95788	P804001N	0.90949	P803708M	0.82131
B013001C	0.96270	P804001M	0.82424	P803709N	0.86223
B013001D	0.94573	P804101B	0.91980	P803709M	0.86262
B013001M	0.81328	P804101C	0.92007	P803710N	0.86652
B013101B	0.95138	P804101N	0.93915	P803710M	0.82866
B013101C	0.92798	P804101M	0.87020	P803711N	0.85031
B013101D	0.90344	P804201B	0.87327	P803711M	0.82239
B013101M	0.82389	P804201C	0.87867	P803712N	0.86042
B013201N	0.79120	P804201D	0.87365	P803712M	0.80076
B013201M	0.74890	P804201M	0.84864	P803801B	0.91475
B013301N	0.81449	P804301B	0.95783	P803801C	0.93033
B013301M	0.78832	P804301C	0.93819	P803801D	0.91375
B013401N	0.86962	P804301D	0.93750	P803801M	0.86139
B013401M	0.85059	P804301M	0.81763	P803901N	0.91559
B013501N	0.73944	P804302B	0.85815	P803901M	0.91119
B013501M	0.74838	P804302C	0.88285	C042501N	0.85754
B013601N	0.80299	P804302D	0.91064	C042501M	0.91185
B013601M	0.76938	P804302M	0.78982	C042601B	0.84390
B013701N	0.83936	P803501B	0.88493	C042601C	0.92654
B013701M	0.82708	P803501C	0.91114	C042601M	0.92512
B000901N	0.91580	P803501D	0.88408	C042602B	0.85876
B000901M	0.87141	P803501M	0.93039	C042602C	0.85026
B000903N	0.91466	P803601N	0.82900	C042602D	0.91013
B000903M	0.90053	P803601M	0.85179	C042602N	0.95865
B013801B	0.95692	P803602N	0.81848	C042602M	0.90499
B013801C	0.96542	P803602M	0.86787	C042603B	0.83472
B013801D	0.95533	P803603N	0.83349	C042603C	0.85098
B013801M	0.69124	P803603M	0.82361	C042603D	0.84494
B000905N	0.90721	P803604N	0.84165	C042603M	0.89041
B000905M	0.87407	P803604M	0.81089	C042604B	0.88062
B006601B	0.92690	P803605N	0.88568	C042604C	0.90590
B014001B	0.88541	P803605M	0.79264	C042604D	0.87960
B014001C	0.89416	P803606N	0.83939	C042604N	0.85431
B014001D	0.93144	P803606M	0.80830	C042604M	0.89058
B014001E	0.92104	P803607N	0.82962	C042701Y	0.94541
B014001M	0.79246	P803607M	0.79453	C042701N	0.95054
B007301B	0.92179	P803701N	0.91004	C042701M	0.92604
B007301C	0.91866	P803701M	0.84919	C042801N	0.84199

Table F-14 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C042801M	0.86318	C043008C	0.89465	C043104N	0.95170
C042802N	0.85951	C043008D	0.86813	C032502B	0.86022
C042802M	0.85633	C043008E	0.87183	C032502C	0.85325
C042803N	0.83706	C043008M	0.97826	C032502D	0.85202
C042803M	0.86435	C032402B	0.89034	C032503B	0.83797
C042901B	0.86353	C032402C	0.92448	C032503C	0.87500
C042901C	0.89195	C032402N	0.92063	C032503D	0.89886
C042901D	0.92817	C032402M	0.95057	C032503M	0.97488
C042901E	0.90477	C032401B	0.88449	C032505B	0.83081
C042901F	0.91273	C032401C	0.93005	C032505C	0.86201
C042901G	0.89018	C032401N	0.92059	C032505D	0.88665
C042901M	0.86015	C032401M	0.98018	C032505M	0.98741
C036601N	0.89368	C032404B	0.86992	C032506B	0.86560
C036601C	0.91448	C032404C	0.94593	C032506C	0.84790
C036601D	0.93684	C032404N	0.92281	C043201B	0.84913
C036601M	0.92353	C032404M	0.98711	C043201C	0.87329
C043001B	0.88197	C032407B	0.88608	C043301B	0.86793
C043001C	0.92188	C032407C	0.93970	C043301C	0.88753
C043001D	0.89112	C032407N	0.94233	C043301D	0.91095
C043001E	0.87855	C032408B	0.87136	C043301M	0.96298
C043001M	0.96021	C032408C	0.95669	C043401B	0.85756
C043002B	0.87123	C032408N	0.92686	C043401C	0.88257
C043002C	0.85295	C032408M	0.97458	C043401D	0.90197
C043002D	0.93656	C032409B	0.88054	C043501B	0.90076
C043002E	0.95346	C032409C	0.92588	C043501C	0.88883
C043002M	0.98320	C032409N	0.89220	C043501D	0.89045
C043003B	0.89702	C032409M	0.96170	C043501E	0.88436
C043003C	0.87718	C032410B	0.90061	C043501F	0.87581
C043003D	0.93759	C032410C	0.87989	C043501M	0.96483
C043003E	0.95471	C032411B	0.91331	C043601B	0.83983
C043004B	0.89644	C032411C	0.91489	C043601C	0.89171
C043004C	0.89738	C032411N	0.94869	C043601D	0.87114
C043004D	0.86272	C032412B	0.90059	C043601M	0.97035
C043004E	0.84451	C032412C	0.89238	C043701B	0.86681
C043004M	0.97512	C032413B	0.86976	C043701C	0.87892
C043005B	0.90112	C032413C	0.80866	C043701D	0.87694
C043005C	0.93325	C032414B	0.88366	C043701E	0.87495
C043005D	0.89635	C032414C	0.95137	C043701M	0.97977
C043005E	0.85620	C032414N	0.90235	C038301N	0.86275
C043005M	0.98150	C032414M	0.97788	C038301M	0.94396
C043006B	0.87106	C043101B	0.88796	C043801B	0.85834
C043006C	0.86510	C043101C	0.95009	C043801C	0.89250
C043006D	0.84852	C043101N	0.95310	C043801D	0.87572
C043006E	0.86817	C043102B	0.86914	C043801E	0.89770
C043006M	0.98859	C043102C	0.94179	C043801F	0.90550
C043007B	0.87523	C043102N	0.93900	C043801G	0.87925
C043007C	0.89131	C043103B	0.91529	C043801H	0.85450
C043007D	0.87409	C043103C	0.94306	C043801M	0.89009
C043007E	0.87804	C043103N	0.96018	C043901N	0.90094
C043007M	0.99225	C043104B	0.85915	C043901M	0.95468
C043008B	0.87845	C043104C	0.95278	C044001B	0.86047

Table F-14 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C044001C	0.88307	T067203C	0.93616	T067506B	0.85823
C044001D	0.89274	T067203D	0.95304	T067506C	0.93445
C044001E	0.85582	T067203E	0.95650	T067506M	0.98724
C044001F	0.84707	T067203M	0.93802	T067507B	0.89665
C044001G	0.87337	T067204B	0.85918	T067507C	0.98275
C044001H	0.89391	T067204C	0.87486	T067507M	0.99004
C044001M	0.92065	T067204D	0.88297	T067508B	0.89116
C044002B	0.86478	T067204E	0.87083	T067508C	0.91018
C044002C	0.88498	T067204M	0.87287	T067508M	0.95105
C044002D	0.90084	T067205B	0.86695	T067509B	0.89737
C044002E	0.88270	T067205C	0.88042	T067509C	0.92459
C044002F	0.89053	T067205D	0.89883	T067509M	0.94381
C044002G	0.89521	T067205E	0.91956	T067510B	0.91273
C044002H	0.90560	T067205M	0.93570	T067510C	0.93607
C044002M	0.93198	T067206B	0.84076	T067510M	0.95265
C044003B	0.83957	T067206C	0.83295	T067511B	0.87061
C044003C	0.86690	T067206D	0.85507	T067511C	0.96058
C044003D	0.85756	T067206E	0.85548	T067511M	0.97036
C044003E	0.87091	T067206M	0.86901	T067512B	0.90402
C044003F	0.88001	T067301B	0.91973	T067512C	0.88991
C044003G	0.88584	T067301C	0.85821	T067512M	0.84116
C044003H	0.90412	T067301D	0.89673	T067601B	0.88426
C044003M	0.93561	T067301M	0.94444	T067601C	0.77620
C044004B	0.89848	T056201B	0.86119	T067601M	0.86957
C044004C	0.89955	T056201C	0.89811	T067602B	0.91028
C044004D	0.89110	T056201D	0.88340	T067602C	0.97387
C044004E	0.84256	T056201E	0.88502	T067602M	0.98211
C044004F	0.86455	T056201F	0.82269	T067603B	0.86304
C044004G	0.96482	T056201M	0.89155	T067603C	0.93111
C044004H	0.89948	T056301B	0.89101	T067603M	0.98417
C044004M	0.92625	T056301C	0.94491	T067604B	0.89015
T067001M	0.87758	T056301D	0.94351	T067604C	0.97501
T067002M	0.88512	T056301E	0.87121	T067604M	0.98490
T067003M	0.89885	T056301F	0.91314	T067605B	0.87356
T067004M	0.79328	T056301G	0.86230	T067605C	0.91394
T067101B	0.84513	T056301M	0.95236	T067605M	0.97279
T067101C	0.85212	T067501B	0.89029	T067606B	0.86785
T067101D	0.89232	T067501C	0.85187	T067606C	0.88483
T067101E	0.89543	T067501M	0.86432	T067606M	0.95970
T067101M	0.95997	T067502B	0.90958	T067607B	0.86569
T067201B	0.92320	T067502C	0.93722	T067607C	0.95595
T067201C	0.92915	T067502M	0.97128	T067607M	0.97976
T067201D	0.95315	T067503B	0.90121	T067608B	0.89944
T067201E	0.96004	T067503C	0.92971	T067608C	0.96402
T067201M	0.95688	T067503M	0.95593	T067608M	0.97485
T067202B	0.92139	T067504B	0.89421	T067609B	0.88470
T067202C	0.91938	T067504C	0.97735	T067609C	0.90035
T067202D	0.93972	T067504M	0.98581	T067609M	0.95327
T067202E	0.94459	T067505B	0.91269	T067610B	0.85712
T067202M	0.93706	T067505C	0.99080	T067610C	0.97414
T067203B	0.91676	T067505M	0.99150	T067610M	0.97848

Table F-14 (continued)

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Civics Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T067611B	0.85130	T070404M	0.97601	T070907D	0.86936
T067611C	0.99253	T070405B	0.85765	T070907M	0.96095
T067612B	0.87829	T070405C	0.85069	T071001B	0.87884
T067612C	0.86335	T070405M	0.96370	T071001C	0.89274
T067612M	0.87399	T070406B	0.91978	T071001D	0.90952
T067701B	0.91304	T070406C	0.93198	T071001E	0.87547
T067701C	0.93147	T070406M	0.93944	T071001M	0.82144
T067701D	0.92980	T070407B	0.91137	T071101B	0.91317
T067701E	0.90737	T070407C	0.92434	T071101C	0.92147
T067701M	0.93144	T070407M	0.97051	T071101D	0.88579
T067702B	0.85333	T070501B	0.88923	T071101M	0.97353
T067702C	0.86549	T070501C	0.90082	T071102B	0.90754
T067702D	0.87293	T070501D	0.88093	T071102C	0.92876
T067702E	0.88840	T070501E	0.90999	T071102D	0.88164
T067702M	0.88688	T070501M	0.97027	T071102M	0.99058
T067801B	0.88392	T070601N	0.83570	T071103B	0.89707
T067801C	0.91217	T070601M	0.96441	T071103C	0.90660
T067801M	0.89992	T070701B	0.94790	T071103D	0.89819
T067802B	0.87655	T070701C	0.91212	T071103M	0.95560
T067802C	0.87011	T070701D	0.95349	T071104B	0.92217
T067802M	0.98711	T070701M	0.96059	T071104C	0.93341
T067803B	0.82970	T070801B	0.89617	T071104D	0.87991
T067803C	0.86497	T070801C	0.91600	T071104M	0.97470
T067803M	0.96560	T070801D	0.82747	T071105B	0.87776
T067804B	0.85759	T070801M	0.96929	T071105C	0.95508
T067804C	0.85377	T070901B	0.87467	T071105D	0.95897
T067804M	0.97450	T070901C	0.88192	T071105M	0.95635
T067805B	0.90929	T070901D	0.83821	T071106B	0.87377
T067805C	0.92213	T070901M	0.97106	T071106C	0.93772
T067805M	0.98156	T070902B	0.91137	T071106D	0.91782
T067806B	0.86858	T070902C	0.92186	T071106M	0.97304
T067806C	0.87493	T070902D	0.85099	T071107B	0.89836
T067806M	0.98257	T070902M	0.95523	T071107C	0.95848
T067807B	0.81642	T070903B	0.90423	T071107D	0.96346
T067807C	0.88869	T070903C	0.94167	T071107M	0.98131
T067807M	0.98034	T070903D	0.92631	T071108B	0.85458
T041201B	0.88693	T070903M	0.86007	T071108C	0.96070
T041201C	0.90183	T070904B	0.86201	T071108D	0.96150
T041201D	0.89030	T070904C	0.86885	T071108M	0.98194
T041201M	0.98227	T070904D	0.90314	T071109B	0.86477
T070401B	0.85154	T070904M	0.97264	T071109C	0.96262
T070401C	0.85591	T070905B	0.90061	T071109D	0.96374
T070401M	0.97951	T070905C	0.93205	T071110B	0.85927
T070402B	0.88532	T070905D	0.92261	T071110C	0.95997
T070402C	0.89190	T070905M	0.95278	T071110D	0.96581
T070402M	0.96003	T070906B	0.88783	T071111B	0.86818
T070403B	0.85888	T070906C	0.92884	T071111C	0.94576
T070403C	0.84267	T070906D	0.88865	T071111D	0.96403
T070403M	0.96939	T070906M	0.96919	T071112B	0.90834
T070404B	0.88170	T070907B	0.90424	T071112C	0.95875
T070404C	0.88355	T070907C	0.92639	T071112D	0.97052

Table F-14 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 4*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T071112M	0.97706	T071114B	0.87575	T071202C	0.88543
T071113B	0.87978	T071114C	0.88997	T071202D	0.86543
T071113D	0.95181	T071114D	0.85311	T071202M	0.99072
T071113M	0.97579	T071114M	0.98028	T071203B	0.90384
		T071115B	0.90064	T071203C	0.91674
		T071115C	0.93988	T071203D	0.87769
		T071115D	0.93087	T071203M	0.98767
		T071115M	0.96204	T071204B	0.91945
		T071116B	0.89302	T071204C	0.94033
		T071116C	0.92509	T071204D	0.86365
		T071116D	0.87187	T071204M	0.98455
		T071116M	0.98305	T071205B	0.90197
		T071201C	0.86854	T071205C	0.95981
		T071201D	0.85645	T071205D	0.92655
		T071201M	0.97687		
		T071202B	0.87791		

Table F-15

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Civics Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
		G/T 24	0.72053	P/T 33	0.79571
FEMALE	0.94845	G/T 25	0.94773	P/T 34	0.78541
BLACK	0.96445	G/T 26	0.70647	P/T 35	0.74816
HISPANIC	0.96227	G/T 27	0.71562	P/T 36	0.79374
ASIAN	0.95150	G/P 22	0.92411	P/T 37	0.96022
MEXICAN	0.93909	G/P 23	0.92073	P/T 41	0.77612
PUER RIC	0.97128	G/P 24	0.87327	P/T 42	0.78918
CUBN,OTH	0.96681	G/P 25	0.88492	P/T 43	0.81244
HISP-?	0.96614	G/S 22	0.92302	P/T 44	0.82055
MID CTY7	0.94681	G/S 23	0.89994	P/T 45	0.82643
FR/LCTY7	0.94761	R/T 24	0.91088	P/T 46	0.96067
FR/MCTY7	0.94708	R/T 25	0.89919	P/T 47	0.80898
LAR TWN7	0.94094	R/T 26	0.90708	P/T 51	0.80733
SML TWN7	0.94224	R/T 27	0.95337	P/T 52	0.84014
OTHER	0.95779	R/T 31	0.89057	P/T 53	0.80809
HS GRAD	0.96420	R/T 32	0.91408	P/T 54	0.81844
POST HS	0.96528	R/T 33	0.91890	P/T 55	0.97051
COL GRAD	0.96307	R/T 34	0.90389	P/T 56	0.84263
PARED-?	0.93804	R/T 35	0.91354	P/T 57	0.85899
S EAST	0.87212	R/T 36	0.94232	T/S 41	0.91766
CENTRAL	0.87043	R/T 37	0.90436	T/S 42	0.91266
WEST	0.88469	R/T 41	0.91571	T/S 43	0.91789
PRIVATE	0.93863	R/T 42	0.92585	T/S 51	0.91272
CATHOLIC	0.94450	R/T 43	0.91479	T/S 52	0.93455
BLACK	0.86519	R/T 44	0.92140	T/S 53	0.94675
HISPANIC	0.80950	R/T 45	0.92371	T/S 61	0.95434
ASIAN	0.80354	R/T 46	0.94052	T/S 62	0.94719
IEP-NO	0.98167	R/T 47	0.93658	T/S 63	0.92860
LEP-NO	0.93754	R/P 24	0.90594	T/S 71	0.94036
TITLE-N	0.79509	R/P 25	0.89051	T/S 72	0.95147
RED PRIC	0.94002	R/P 31	0.90200	T/S 73	0.95245
FREE	0.76730	R/P 32	0.82568	P/S 32	0.94722
INFO N/A	0.85391	R/P 33	0.89785	P/S 33	0.91769
SCH/REF	0.87977	R/P 34	0.88308	P/S 41	0.94828
SCH/NP	0.83309	R/P 35	0.88870	P/S 42	0.92203
TVLIN-0	0.98149	R/P 41	0.86253	P/S 43	0.92881
TV-QUAD	0.98117	R/P 42	0.96373	P/S 51	0.90805
HW-NO	0.93428	R/P 43	0.95047	P/S 52	0.95932
HW-YES	0.94326	R/P 44	0.94513	P/S 53	0.94760
HWLIN-0	0.97115	R/P 45	0.91509	A/G 22	0.88884
HWQUAD-0	0.90346	R/S 31	0.95807	A/R 22	0.93490
HITEM=3	0.95612	R/S 32	0.95455	A/R 23	0.93255
HITEM=4	0.97440	R/S 33	0.96089	A/R 24	0.96413
PGS>5	0.80778	R/S 41	0.93630	A/T 22	0.93952
PGS>10	0.82723	R/S 42	0.95352	A/T 23	0.92685
NO ACCOM	0.95387	R/S 43	0.95800	A/T 24	0.94826
G/R 22	0.90306	P/T 25	0.80532	A/T 25	0.97291
G/R 23	0.90389	P/T 26	0.76549	A/T 26	0.94201
G/R 24	0.95333	P/T 27	0.77380		
G/T 22	0.69518	P/T 31	0.95384		
G/T 23	0.74378	P/T 32	0.78682		

Table F-15 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
A/T 27	0.93058	B007301B	0.96219	P803708N	0.81677
A/P 22	0.89833	B007301C	0.96582	P803708M	0.83522
A/P 23	0.89056	B007301D	0.94809	P803709N	0.84013
A/P 24	0.89973	B007301M	0.85039	P803709M	0.82489
A/P 25	0.85537	B007401B	0.89362	P803710N	0.83527
A/S 22	0.96328	B007401C	0.91028	P803710M	0.82363
A/S 23	0.95543	B007401D	0.85047	P803711N	0.82721
A/I 22	0.98156	B007401M	0.89906	P803711M	0.80988
A/L 22	0.94985	B014101B	0.95070	P803712N	0.85010
BLACK	0.93531	B014101C	0.93300	P803712M	0.81879
HISPANIC	0.91095	B014101D	0.92688	P803901N	0.88924
ASIAN AM	0.92120	B014101E	0.93384	P803901M	0.88322
AMER IND	0.97321	B014101M	0.87377	C042701Y	0.91063
OTHER	0.96502	P804001B	0.93955	C042701N	0.90514
B003001M	0.83598	P804001C	0.92631	C042701M	0.91487
B013001B	0.93532	P804001N	0.93748	C042801N	0.86687
B013001C	0.95491	P804001M	0.88245	C042801M	0.88709
B013001D	0.92962	P804101B	0.90955	C042802N	0.84756
B013001M	0.76664	P804101C	0.89875	C042802M	0.90801
B013101B	0.95590	P804101N	0.89729	C042803N	0.85052
B013101C	0.93315	P804101M	0.87599	C042803M	0.87572
B013101D	0.89763	P804201B	0.85714	C042901B	0.83263
B013101M	0.89512	P804201C	0.86261	C042901C	0.89033
B013201N	0.76537	P804201D	0.88520	C042901D	0.91543
B013201M	0.77139	P804201M	0.86588	C042901E	0.91603
B013301N	0.86189	P804301B	0.95925	C042901F	0.91752
B013301M	0.86623	P804301C	0.94562	C042901G	0.91393
B013401N	0.89107	P804301D	0.94818	C042901M	0.93483
B013401M	0.86293	P804301M	0.83719	C036601N	0.91743
B013501N	0.76175	P804302B	0.85168	C036601C	0.93655
B013501M	0.79743	P804302C	0.90330	C036601D	0.95001
B013601N	0.83057	P804302D	0.91491	C036601M	0.97420
B013601M	0.80874	P804302M	0.83831	C043001B	0.89882
B013701N	0.86946	P803501B	0.94823	C043001C	0.90102
B013701M	0.83769	P803501C	0.97086	C043001D	0.90190
B000901N	0.91810	P803501D	0.92959	C043001E	0.87087
B000901M	0.83204	P803501M	0.88980	C043001M	0.98443
B000903N	0.93927	P803701N	0.92829	C043002B	0.87823
B000903M	0.85102	P803701M	0.72254	C043002C	0.88995
B013801B	0.96261	P803702N	0.93287	C043002D	0.93285
B013801C	0.96620	P803702M	0.88247	C043002E	0.94270
B013801D	0.95679	P803703N	0.86717	C043002M	0.95677
B013801M	0.74256	P803703M	0.79660	C043003B	0.87481
B000905N	0.92277	P803704N	0.95248	C043003C	0.89867
B000905M	0.84091	P803704M	0.73926	C043003D	0.93750
B006601B	0.79841	P803705N	0.85813	C043003E	0.92104
B014001B	0.86211	P803705M	0.79196	C043003M	0.95332
B014001C	0.86742	P803706N	0.89929	C043004B	0.87353
B014001D	0.92196	P803706M	0.83332	C043004C	0.89226
B014001E	0.93064	P803707N	0.81733	C043004D	0.88453
B014001M	0.82109	P803707M	0.72963	C043004E	0.86804

Table F-15 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C043004M	0.94581	C032411M	0.97335	C043501B	0.88474
C043005B	0.92423	C032412B	0.89248	C043501C	0.88973
C043005C	0.92432	C032412C	0.92155	C043501D	0.86841
C043005D	0.90959	C032412N	0.92838	C043501E	0.88983
C043005E	0.86518	C032412M	0.96713	C043501F	0.87241
C043005M	0.97449	C032413B	0.90063	C043501M	0.93190
C043006B	0.86042	C032413C	0.94132	C043601B	0.86748
C043006C	0.85756	C032413N	0.94478	C043601C	0.87376
C043006D	0.83307	C032413M	0.99632	C043601D	0.88352
C043006E	0.91734	C032414B	0.92179	C043601E	0.85955
C043006M	0.98281	C032414C	0.94296	C043601M	0.93963
C043007B	0.87709	C032414N	0.85191	C043701B	0.85627
C043007C	0.89310	C032414M	0.97112	C043701C	0.87304
C043007D	0.85444	C043101B	0.87694	C043701D	0.90017
C043007E	0.89006	C043101C	0.95591	C043701E	0.90061
C043007M	0.97971	C043101N	0.93579	C043701M	0.94824
C043008B	0.86537	C043102B	0.90021	C038301N	0.84644
C043008C	0.86935	C043102C	0.94819	C038301M	0.93321
C043008D	0.91115	C043102N	0.92700	C043801B	0.87795
C043008E	0.83616	C043103B	0.88591	C043801C	0.89195
C032402B	0.87814	C043103C	0.83470	C043801D	0.89471
C032402C	0.92609	C043104B	0.85614	C043801E	0.89904
C032402N	0.90076	C043104C	0.95158	C043801F	0.88709
C032402M	0.97666	C043104N	0.93380	C043801G	0.89625
C032401B	0.90394	C043104M	0.97075	C043801H	0.86095
C032401C	0.93585	C032502B	0.87271	C043801M	0.87473
C032401N	0.87973	C032502C	0.87820	C043901N	0.92072
C032401M	0.96770	C032502D	0.85012	C043901M	0.94631
C032404B	0.88936	C032502M	0.97079	C044001B	0.88648
C032404C	0.93746	C032503B	0.87997	C044001C	0.87577
C032404N	0.87097	C032503C	0.88136	C044001D	0.88224
C032404M	0.92359	C032503D	0.86240	C044001E	0.87898
C032407B	0.85600	C032503M	0.95923	C044001F	0.87205
C032407C	0.93991	C032505B	0.87650	C044001G	0.87426
C032407N	0.93241	C032505C	0.87031	C044001H	0.89529
C032407M	0.97909	C032505D	0.87776	C044001M	0.93271
C032408B	0.86451	C032505M	0.98365	C044002B	0.89071
C032408C	0.95381	C032506B	0.84981	C044002C	0.90245
C032408N	0.92979	C032506C	0.87123	C044002D	0.87740
C032408M	0.97437	C032506D	0.86207	C044002E	0.88550
C032409B	0.90118	C032506M	0.97014	C044002F	0.90784
C032409C	0.92506	C043201B	0.84825	C044002G	0.87259
C032409N	0.90065	C043201C	0.86886	C044002H	0.89743
C032409M	0.98418	C043201M	0.97876	C044002M	0.93358
C032410B	0.90342	C043301B	0.88691	C044003B	0.86866
C032410C	0.93319	C043301C	0.91072	C044003C	0.87141
C032410N	0.93925	C043301D	0.86000	C044003D	0.86229
C032410M	0.96490	C043301M	0.94380	C044003E	0.89241
C032411B	0.90878	C043401B	0.87144	C044003F	0.90089
C032411C	0.92868	C043401C	0.87060	C044003H	0.86757
C032411N	0.92227	C043401M	0.95078	C044003M	0.93576

Table F-15 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C044004B	0.88350	T056201B	0.86696	T067601M	0.92557
C044004C	0.90158	T056201C	0.87118	T067602B	0.85524
C044004D	0.88337	T056201D	0.88622	T067602C	0.85590
C044004E	0.85085	T056201E	0.90545	T067602M	0.88857
C044004F	0.87565	T056201F	0.82839	T067603B	0.84736
C044004G	0.93310	T056201M	0.92599	T067603C	0.96949
C044004H	0.91149	T056301B	0.86632	T067603M	0.97890
C044004M	0.93655	T056301C	0.94880	T067604B	0.88215
B014201B	0.97002	T056301D	0.94881	T067604C	0.97761
B014201C	0.98000	T056301E	0.86926	T067604M	0.98097
B014201D	0.97976	T056301F	0.88692	T067605B	0.85332
B014201E	0.96559	T056301G	0.89375	T067605C	0.88480
B014201M	0.93073	T056301M	0.96785	T067605M	0.92374
P804401N	0.77604	T067501B	0.87182	T067606B	0.88152
P804401M	0.81127	T067501C	0.87087	T067606C	0.92954
P804402N	0.76741	T067501M	0.88121	T067606M	0.96353
P804402M	0.80149	T067502B	0.85470	T067607B	0.86456
P804403N	0.77448	T067502C	0.83419	T067607C	0.94910
P804403M	0.87516	T067502M	0.85140	T067607M	0.94952
P804404N	0.74843	T067503B	0.87397	T067608B	0.86220
P804404M	0.86739	T067503C	0.97148	T067608C	0.97467
P804405N	0.77890	T067503M	0.98003	T067608M	0.97281
P804405M	0.83680	T067504B	0.91230	T067609B	0.87655
P804406N	0.77480	T067504C	0.98484	T067609C	0.94633
P804406M	0.86683	T067504M	0.98988	T067609M	0.96373
P804407N	0.79771	T067505B	0.84747	T067610B	0.86769
P804407M	0.86906	T067505C	0.98785	T067610C	0.88803
P804408N	0.84693	T067505M	0.99012	T067610M	0.91493
P804408M	0.83763	T067506B	0.87183	T067611B	0.87295
P804409N	0.83482	T067506C	0.97466	T067611C	0.95620
P804409M	0.84151	T067506M	0.98914	T067611M	0.97030
P804501B	0.85348	T067507B	0.85962	T067612B	0.88966
P804501C	0.92684	T067507C	0.98093	T067612C	0.85810
P804501D	0.92713	T067507M	0.98249	T067612M	0.86529
P804501E	0.94917	T067508B	0.88220	T067701B	0.88371
P804501F	0.96074	T067508C	0.91130	T067701C	0.89417
P804501M	0.72352	T067508M	0.92147	T067701D	0.88230
C044401N	0.88527	T067509B	0.86033	T067701E	0.88126
C044401M	0.95808	T067509C	0.94934	T067701M	0.86589
C044402N	0.87436	T067509M	0.98050	T067702B	0.89336
C044402M	0.92614	T067510B	0.86800	T067702C	0.89321
C043105B	0.88136	T067510C	0.84393	T067702D	0.87839
C043105C	0.93912	T067510M	0.83242	T067702E	0.90113
C043105N	0.95228	T067511B	0.88094	T067702M	0.90566
C043106B	0.86723	T067511C	0.88798	T067801B	0.88534
C043106C	0.93351	T067511M	0.88289	T067801C	0.87959
C043106N	0.93435	T067512B	0.89003	T067801M	0.92906
T067301B	0.88489	T067512C	0.85800	T067802B	0.87928
T067301C	0.85086	T067512M	0.84951	T067802C	0.87910
T067301D	0.93649	T067601B	0.86824	T067802M	0.98974
T067301M	0.96687	T067601C	0.88964	T067803B	0.82885

Table F-15 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T067803C	0.85113	T070901D	0.85344	T071107C	0.94239
T067803M	0.97991	T070901M	0.97280	T071107D	0.92647
T067804B	0.86707	T070902B	0.87302	T071107M	0.98957
T067804C	0.85668	T070902C	0.90199	T071108B	0.87870
T067804M	0.98992	T070902D	0.86629	T071108C	0.94072
T067805B	0.91873	T070902M	0.96570	T071108D	0.92847
T067805C	0.91981	T070903B	0.92256	T071108M	0.99281
T067805M	0.98315	T070903C	0.94777	T071109B	0.87971
T067806B	0.89922	T070903D	0.89671	T071109C	0.95144
T067806C	0.90604	T070903M	0.95356	T071109D	0.95989
T067806M	0.97136	T070904B	0.87195	T071109M	0.98982
T067807B	0.85906	T070904C	0.88714	T071110B	0.90068
T067807C	0.85180	T070904D	0.85017	T071110C	0.91767
T067807M	0.96099	T070904M	0.97511	T071110D	0.95547
T041201B	0.89104	T070905B	0.88035	T071110M	0.98746
T041201C	0.90699	T070905C	0.92167	T071111B	0.83903
T041201D	0.86863	T070905D	0.93452	T071111C	0.90271
T041201M	0.98823	T070905M	0.97034	T071111D	0.96574
T070401B	0.84665	T070906B	0.89576	T071111M	0.98826
T070401C	0.86838	T070906C	0.92695	T071112B	0.86829
T070401M	0.99014	T070906D	0.86967	T071112C	0.93109
T070402B	0.88292	T070906M	0.97424	T071112D	0.96226
T070402C	0.88464	T070907B	0.91943	T071112M	0.98671
T070402M	0.98015	T070907C	0.94125	T071113B	0.87020
T070403B	0.84924	T070907D	0.90157	T071113C	0.95196
T070403C	0.87046	T070907M	0.95445	T071113D	0.94767
T070403M	0.98573	T071101B	0.89144	T071113M	0.99071
T070404B	0.88611	T071101C	0.91066	T071114B	0.86804
T070404C	0.88907	T071101D	0.90608	T071114C	0.87833
T070404M	0.98093	T071101M	0.98168	T071114D	0.87071
T070405B	0.84937	T071102B	0.87797	T071114M	0.99199
T070405C	0.85612	T071102C	0.89345	T071115B	0.87842
T070405M	0.98448	T071102D	0.87337	T071115C	0.93099
T070406B	0.90574	T071102M	0.95878	T071115D	0.93701
T070406C	0.91483	T071103B	0.85519	T071115M	0.97029
T070406M	0.95758	T071103C	0.88011	T071116B	0.84865
T070407B	0.89413	T071103D	0.86620	T071116C	0.84439
T070407C	0.91205	T071103M	0.98696	T071116D	0.84389
T070407M	0.98695	T071104B	0.91479	T071116M	0.99256
T070601N	0.81174	T071104C	0.94124	T071201B	0.85847
T070601M	0.95548	T071104D	0.86781	T071201C	0.87032
T070701B	0.90837	T071104M	0.98744	T071201D	0.85249
T070701C	0.90239	T071105B	0.89341	T071201M	0.97232
T070701D	0.91686	T071105C	0.95132	T071202B	0.88807
T070701M	0.96260	T071105D	0.94602	T071202C	0.88662
T070801B	0.93660	T071105M	0.98645	T071202D	0.85975
T070801C	0.93690	T071106B	0.89821	T071202M	0.97271
T070801D	0.87300	T071106C	0.92396	T071203B	0.86067
T070801M	0.96242	T071106D	0.89817	T071203C	0.87297
T070901B	0.83552	T071106M	0.98348	T071203D	0.84453
T070901C	0.86949	T071107B	0.89320	T071203M	0.98073

Table F-15 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 8*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
T071204B	0.90278	T071301C	0.90977	T071502E	0.87343
T071204C	0.92661	T071301D	0.87784	T071502F	0.85434
T071204D	0.84431	T071301M	0.92135	T071502M	0.87731
T071204M	0.98471	T071401M	0.84352	T071503B	0.82484
T071205B	0.90089	T071402M	0.85345	T071503C	0.88346
T071205C	0.94359	T071403M	0.88033	T071503D	0.87727
T071205D	0.87910	T071404M	0.84831	T071503E	0.88783
T071205M	0.97442	T040301B	0.86044	T071503F	0.85516
T071301B	0.90069	T040301C	0.85678	T071503M	0.87297
		T040301D	0.89932	T071504B	0.88817
		T040301E	0.88761	T071504C	0.89637
		T040301M	0.95633	T071504D	0.87513
		T071501B	0.85737	T071504E	0.88133
		T071501C	0.88150	T071504F	0.86190
		T071501D	0.85323	T071504M	0.91370
		T071501E	0.86411	CLASIZ-2	0.89568
		T071501F	0.85716	CLASIZ-3	0.90022
		T071501M	0.87859	CLASIZ-4	0.90105
		T071502B	0.85122	CLASIZ-5	0.93049
		T071502C	0.86136	CLASIZ-?	0.82343
		T071502D	0.86861		

Table F-16

*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
by the Principal Components Used in the Conditioning Model for
National Civics Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
FEMALE	0.94934	G/R 22	0.91024	P/T 25	0.84584
BLACK	0.97088	G/R 23	0.91351	P/T 26	0.82375
HISPANIC	0.97106	G/R 24	0.95034	P/T 27	0.85162
ASIAN	0.95455	G/T 22	0.78957	P/T 31	0.95567
MEXICAN	0.94580	G/T 23	0.84176	P/T 32	0.81737
PUER RIC	0.97328	G/T 24	0.72174	P/T 33	0.80104
CUBN,OTH	0.97283	G/T 25	0.95984	P/T 34	0.80039
HISP-?	0.97285	G/T 26	0.71068	P/T 35	0.79572
MID CTY7	0.94779	G/T 27	0.74878	P/T 36	0.81721
FR/LCTY7	0.94975	G/P 22	0.93278	P/T 37	0.96593
FR/MCTY7	0.95934	G/P 23	0.96109	P/T 41	0.77688
LAR TWN7	0.94780	G/P 24	0.90911	P/T 42	0.77277
SML TWN7	0.95153	G/P 25	0.92806	P/T 43	0.81782
OTHER	0.93465	G/S 22	0.93496	P/T 44	0.81842
HS GRAD	0.96351	G/S 23	0.90516	P/T 45	0.83551
POST HS	0.96398	R/T 24	0.91627	P/T 46	0.96239
COL GRAD	0.96660	R/T 25	0.90567	P/T 47	0.81893
PARED-?	0.91531	R/T 26	0.91173	P/T 51	0.81371
S EAST	0.85715	R/T 27	0.97079	P/T 52	0.92148
CENTRAL	0.88010	R/T 31	0.89430	P/T 53	0.92009
WEST	0.89486	R/T 32	0.90983	P/T 54	0.93432
PRIVATE	0.95110	R/T 33	0.91774	P/T 55	0.95709
CATHOLIC	0.95562	R/T 34	0.91559	P/T 56	0.88045
BLACK	0.88230	R/T 35	0.90895	P/T 57	0.91748
HISPANIC	0.82595	R/T 36	0.94931	T/S 41	0.92885
ASIAN	0.81428	R/T 37	0.91087	T/S 42	0.90670
IEP-NO	0.97551	R/T 41	0.92434	T/S 43	0.93258
LEP-NO	0.94751	R/T 42	0.92940	T/S 51	0.91792
TITLE-N	0.80768	R/T 43	0.91749	T/S 52	0.95956
RED PRIC	0.96619	R/T 44	0.92552	T/S 53	0.96904
FREE	0.84003	R/T 45	0.92702	T/S 61	0.96396
INFO N/A	0.89676	R/T 46	0.93249	T/S 62	0.94860
SCH/REF	0.92981	R/T 47	0.94070	T/S 63	0.91904
SCH/NP	0.84211	R/P 24	0.89620	T/S 72	0.93354
TVLIN-0	0.97831	R/P 25	0.89568	P/S 32	0.94384
TV-QUAD	0.97808	R/P 31	0.91151	P/S 33	0.90852
HW-NO	0.95942	R/P 32	0.84085	P/S 41	0.93891
HW-YES	0.96668	R/P 33	0.89928	P/S 42	0.89834
HWLIN-0	0.97864	R/P 34	0.89769	P/S 43	0.92766
HWQUAD-0	0.89491	R/P 35	0.90419	P/S 51	0.89571
HITEM=3	0.97788	R/P 41	0.88435	P/S 52	0.94041
HITEM=4	0.97566	R/P 42	0.93613	P/S 53	0.92633
PGS>5	0.83230	R/P 43	0.94288	A/G 22	0.92245
PGS>10	0.83822	R/P 44	0.93717	A/R 22	0.95035
NO ACCOM	0.94609	R/P 45	0.90765	A/R 23	0.95505
NYRCIV B	0.96669	R/S 31	0.94727	A/R 24	0.96601
NYRCIV C	0.95642	R/S 32	0.94331	A/T 22	0.94194
NYRCIV D	0.95675	R/S 33	0.94810	A/T 23	0.93513
NYRCIV E	0.96404	R/S 41	0.94076		
NYRCIV2B	0.96605	R/S 42	0.95657		
NYRCIV2C	0.96765	R/S 43	0.95203		

Table F-16 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
A/T 24	0.94559	P/N 25	0.84596	P/N 42	0.90622
A/T 25	0.95285	P/N 31	0.90297	P/N 43	0.86903
A/T 26	0.94244	P/N 32	0.90278	P/N 51	0.91289
A/P 22	0.93072	P/N 33	0.90486	P/N 52	0.91991
A/P 23	0.93001	P/N 34	0.88141	P/N 53	0.91374
A/P 24	0.93550	P/N 35	0.94026	S/N 23	0.92954
A/P 25	0.90807	P/N 41	0.91959	S/N 31	0.93608
A/S 22	0.96215	P/N 42	0.91415	S/N 32	0.91557
A/S 23	0.96102	P/N 43	0.87743	S/N 33	0.92148
A/I 22	0.97816	P/N 44	0.91419	A/N 22	0.92424
A/L 22	0.94576	P/N 45	0.90549	A/N 23	0.92659
G/N 22	0.87342	P/N 51	0.88846	BLACK	0.93587
G/N 23	0.93783	P/N 52	0.90834	HISPANIC	0.93141
G/N 24	0.91273	P/N 53	0.94505	ASIAN AM	0.91401
G/N 25	0.92314	P/N 54	0.92052	AMER IND	0.98884
R/N 24	0.90131	P/N 55	0.92086	OTHER	0.98201
R/N 25	0.90903	N/S 32	0.92796	B003001M	0.74364
R/N 31	0.90932	N/S 33	0.89664	B013001B	0.93459
R/N 32	0.90778	N/S 41	0.93662	B013001C	0.93199
R/N 33	0.91069	N/S 42	0.89840	B013001D	0.90967
R/N 34	0.90975	N/S 43	0.93936	B013001M	0.81342
R/N 35	0.89878	N/S 51	0.89214	B013101B	0.95737
R/N 41	0.90818	N/S 52	0.94053	B013101C	0.92129
R/N 42	0.94364	N/S 53	0.90242	B013101D	0.85693
R/N 43	0.94848	A/N 22	0.92329	B013101M	0.80173
R/N 44	0.95085	A/N 23	0.91557	B013201N	0.74601
R/N 45	0.94462	A/N 24	0.92196	B013201M	0.79006
N/T 25	0.85303	A/N 25	0.92354	B013301N	0.82487
N/T 26	0.84298	G/N 22	0.88415	B013301M	0.85558
N/T 27	0.87920	G/N 23	0.88554	B013401N	0.85191
N/T 31	0.96749	R/N 31	0.89922	B013401M	0.85052
N/T 32	0.87207	R/N 32	0.89966	B013501N	0.80090
N/T 33	0.86213	R/N 33	0.91471	B013501M	0.82410
N/T 34	0.73287	R/N 41	0.90359	B013601N	0.82916
N/T 35	0.79780	R/N 42	0.94429	B013601M	0.83672
N/T 36	0.77108	R/N 43	0.93880	B013701N	0.84905
N/T 37	0.97199	T/N 41	0.81675	B013701M	0.83855
N/T 41	0.74908	T/N 42	0.92146	B000901N	0.96658
N/T 42	0.77735	T/N 43	0.78898	B000901M	0.77723
N/T 43	0.80269	T/N 51	0.91045	B000903N	0.97076
N/T 44	0.89990	T/N 52	0.79521	B000903M	0.76656
N/T 45	0.79900	T/N 53	0.91459	B013801B	0.97154
N/T 46	0.94752	T/N 61	0.97517	B013801C	0.96608
N/T 47	0.78972	T/N 62	0.95992	B013801D	0.96007
N/T 51	0.79346	T/N 63	0.80627	B013801M	0.85026
N/T 52	0.84293	T/N 71	0.92480	B000905N	0.97483
N/T 53	0.86933	T/N 72	0.80572	B000905M	0.74518
N/T 54	0.84904	T/N 73	0.91860	B006601B	0.81797
N/T 55	0.97629	P/N 32	0.85609	B014001B	0.87302
N/T 56	0.87206	P/N 33	0.90426	B014001C	0.89114
N/T 57	0.85220	P/N 41	0.89596	B014001D	0.93218

Table F-16 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
B014001E	0.93731	C042701M	0.96944	C043008C	0.86212
B014001M	0.88206	C042801N	0.84863	C043008D	0.98401
B007301B	0.97545	C042801M	0.87489	C043008E	0.93730
B007301C	0.98471	C042802N	0.90084	C043008M	0.96181
B007301D	0.96625	C042802M	0.87711	C032402B	0.90073
B007301M	0.89159	C042803N	0.86792	C032402C	0.94410
B007401B	0.89418	C042803M	0.86333	C032402N	0.90108
B007401C	0.91545	C042901B	0.88267	C032401B	0.93023
B007401D	0.86082	C042901C	0.91057	C032401C	0.93390
B007401M	0.88191	C042901D	0.92162	C032401N	0.88756
B014101B	0.95779	C042901E	0.92155	C032404B	0.88480
B014101C	0.93125	C042901F	0.93999	C032404C	0.95833
B014101D	0.92505	C042901G	0.95327	C032404N	0.90438
B014101E	0.93535	C036601N	0.90253	C032407B	0.91266
B014101M	0.87184	C036601C	0.93843	C032407C	0.96181
P804301B	0.98186	C036601D	0.96001	C032407N	0.95908
P804301C	0.97081	C036601M	0.96014	C032408B	0.86681
P804301D	0.96849	C043001B	0.89178	C032408C	0.95730
P804301M	0.94391	C043001C	0.90548	C032408N	0.93663
P804302B	0.95054	C043001D	0.91920	C032408M	0.96303
P804302C	0.96699	C043001E	0.86320	C032409B	0.92122
P804302D	0.97522	C043001M	0.97664	C032409C	0.94177
P804302M	0.94468	C043002B	0.89319	C032409N	0.90336
P803701N	0.90151	C043002C	0.92090	C032409M	0.96528
P803701M	0.79921	C043002D	0.94812	C032410B	0.89052
P803702N	0.94977	C043002E	0.91745	C032410C	0.90429
P803702M	0.69049	C043002M	0.99608	C032410N	0.85974
P803703N	0.96534	C043003B	0.92692	C032410M	0.98695
P803703M	0.69650	C043003C	0.92696	C032411B	0.91505
P803704N	0.94443	C043003D	0.94974	C032411C	0.92794
P803704M	0.78991	C043003E	0.90465	C032411N	0.87517
P803705N	0.95172	C043003M	0.99155	C032412B	0.90053
P803705M	0.72074	C043004B	0.89752	C032412C	0.91830
P803706N	0.96560	C043004C	0.91490	C032412N	0.88006
P803706M	0.76154	C043004D	0.90124	C032413B	0.87071
P803707N	0.83737	C043004E	0.85554	C032413C	0.94574
P803707M	0.80366	C043004M	0.98313	C032413N	0.93412
P803708N	0.81362	C043005B	0.92098	C032413M	0.97392
P803708M	0.74296	C043005C	0.94583	C032414B	0.91259
P803709N	0.91112	C043005D	0.92609	C032414C	0.96318
P803709M	0.72446	C043005E	0.87717	C032414N	0.90069
P803710N	0.89027	C043006B	0.89483	C032414M	0.96316
P803710M	0.72648	C043006C	0.87960	C043101B	0.91624
P803711N	0.87730	C043006D	0.88105	C043101C	0.96823
P803711M	0.73896	C043006E	0.96252	C043101N	0.90812
P803712N	0.93109	C043007B	0.88682	C043101M	0.96239
P803712M	0.72761	C043007C	0.88751	C043102B	0.90489
P803901N	0.84393	C043007D	0.89832	C043102C	0.94445
P803901M	0.82221	C043007E	0.88890	C043102N	0.92652
C042701Y	0.89661	C043007M	0.98854	C043103B	0.85757
C042701N	0.87374	C043008B	0.87191	C043103C	0.82104

Table F-16 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C043104B	0.90071	C043801H	0.88106	P804408M	0.78321
C043104C	0.95871	C043801M	0.86475	P804409N	0.82184
C043104N	0.93074	C043901N	0.92834	P804409M	0.82357
C032502B	0.86474	C043901M	0.91454	C043105B	0.90385
C032502C	0.89367	C044001B	0.90296	C043105C	0.92373
C032502M	0.95251	C044001C	0.92159	C043105N	0.87108
C032503B	0.86686	C044001D	0.89312	C043105M	0.96741
C032503C	0.87694	C044001E	0.86322	C043106B	0.90681
C032503D	0.89709	C044001F	0.89676	C043106C	0.92625
C032505B	0.85189	C044001G	0.85605	C043106N	0.87956
C032505C	0.87696	C044001H	0.87454	C043106M	0.97736
C032505D	0.86781	C044001M	0.83375	B005501B	0.97129
C032506B	0.88635	C044002B	0.89405	B005501C	0.96065
C032506C	0.88894	C044002C	0.89704	B005501D	0.93778
C032506D	0.87528	C044002D	0.89928	B005501E	0.98095
C032506M	0.97941	C044002E	0.90414	B005501F	0.97418
C043201B	0.85637	C044002F	0.92560	B005501M	0.79557
C043201C	0.89877	C044002G	0.89739	B014301Y	0.87564
C043201M	0.97340	C044002H	0.93263	B014301N	0.82781
C043301B	0.92888	C044002M	0.91576	B014301M	0.84991
C043301C	0.92997	C044003B	0.86846	B014401B	0.95334
C043301D	0.89427	C044003C	0.88765	B014401C	0.94183
C043301E	0.87594	C044003D	0.89744	B014401D	0.93226
C043301M	0.93766	C044003E	0.90203	B014401E	0.91122
C043401B	0.89189	C044003F	0.92897	B014401F	0.89327
C043401C	0.88493	C044003G	0.91085	B014401M	0.86441
C043401D	0.88518	C044003H	0.91536	P802545B	0.97784
C043401M	0.97966	C044003M	0.92084	P802545C	0.96551
C043501B	0.90620	C044004B	0.88034	P802545N	0.96597
C043501C	0.89906	C044004C	0.91166	P802545M	0.87927
C043501D	0.90199	C044004D	0.89127	P802546B	0.96034
C043501E	0.91928	C044004E	0.91831	P802546C	0.95642
C043501F	0.91003	C044004F	0.91651	P802546N	0.95655
C043501M	0.94386	C044004G	0.90356	P802546M	0.95284
C043601B	0.87133	C044004H	0.91340	P802547B	0.91066
C043601C	0.89844	C044004M	0.87315	P802547C	0.91017
C043601D	0.87814	P804401N	0.79972	P802547D	0.87600
C043601E	0.89165	P804401M	0.74462	P802547M	0.95030
C043601M	0.94488	P804402N	0.82734	P804601M	0.85123
C043701B	0.87917	P804402M	0.74825	P804603M	0.80948
C043701C	0.87439	P804403N	0.76843	P804701B	0.92148
C043701D	0.88386	P804403M	0.68234	P804701C	0.92254
C043701E	0.90469	P804404N	0.78919	P804701D	0.92640
C038301N	0.83286	P804404M	0.72012	P804701E	0.95469
C038301M	0.96224	P804405N	0.78563	P804701F	0.97043
C043801B	0.88098	P804405M	0.71796	P804701M	0.87641
C043801C	0.90638	P804406N	0.77293	P804801N	0.91200
C043801D	0.94547	P804406M	0.71090	P804801M	0.92153
C043801E	0.94036	P804407N	0.73331	P804901N	0.94894
C043801F	0.89351	P804407M	0.69103	P804901M	0.89461
C043801G	0.88739	P804408N	0.84031	C044301N	0.87259

Table F-16 (continued)
*Proportion of Variance of the Conditioning Variable Contrasts Accounted for
 by the Principal Components Used in the Conditioning Model for
 National Civics Conditioning Variables, Grade 12*

Contrast	Proportion of Variance	Contrast	Proportion of Variance	Contrast	Proportion of Variance
C044301M	0.96960	C044101B	0.87863	C044201M	0.91415
C044302N	0.89023	C044101C	0.87043	C044202B	0.92408
C044302M	0.88920	C044101D	0.89007	C044202C	0.89347
		C044101E	0.86630	C044202D	0.92639
		C044101M	0.96328	C044202E	0.94405
		C044201B	0.87486	C044202F	0.93901
		C044201C	0.89977	C044202G	0.89545
		C044201D	0.95516	C044202H	0.88406
		C044201E	0.93389	C044202M	0.93634
		C044201F	0.91593		
		C044201G	0.87949		
		C044201H	0.92831		

Appendix G

REPORTING SUBGROUPS AND SPECIAL VARIABLES FOR THE 1998 NAEP ASSESSMENT

G.1 MAJOR REPORTING SUBGROUPS

Results for the 1998 assessment were reported for student subgroups defined by gender, race/ethnicity, type of location, parents' level of education, eligibility for the National School Lunch Program, enrollment in Title I funding, school type, and geographical region. The following explains how each of these subgroups was derived.

Gender (DSEX)

The variable SEX is the gender of the student being assessed, as taken from school records. For a few students, data for this variable was missing and was imputed by ETS after the assessment. The resulting variable DSEX contains a value for every student and is used for gender comparisons among students.

Race/Ethnicity (DRACE)

The variable DRACE is an imputed definition of race/ethnicity, derived from up to three sources of information. This variable is used for race/ethnicity subgroup comparisons in the 1998 national and state assessments (reading, writing, and civics). Two items from the student demographics questionnaire were used in determining derived race/ethnicity:

Demographic Item Number 2:

2. If you are Hispanic, what is your Hispanic background?
 - I am not Hispanic.
 - Mexican, Mexican American, or Chicano
 - Puerto Rican
 - Cuban
 - Other Spanish or Hispanic background

Students who responded to Item Number 2 by filling in the second, third, fourth, or fifth oval were considered Hispanic. For students who filled in the first oval, did not respond to the item, or provided information that was illegible or could not be classified, responses to item number 1 were examined in an effort to determine race/ethnicity. Item Number 1 read as follows:

Demographic Item Number 1:

1. Which best describes you?
 - White (not Hispanic)
 - Black (not Hispanic)
 - Hispanic (“Hispanic” means someone who is Mexican, Mexican American, Chicano, Puerto Rican, Cuban, or from some other Spanish or Hispanic background.)
 - Asian or Pacific Islander (“Asian or Pacific Islander” means someone who is Chinese, Japanese, Korean, Filipino, Vietnamese, or from some other Asian or Pacific Island background.)
 - American Indian or Alaskan Native (“American Indian or Alaskan Native” means someone who is from one of the American Indian tribes, or one of the original people of Alaska.)
 - Other (What?) _____

Students’ race/ethnicity was then assigned to correspond with their selection. For students who filled in the sixth oval (Other), provided illegible information or information that could not be classified, or did not respond at all, race/ethnicity as provided from school records was used. Derived race/ethnicity could not be determined for students who did not respond to background items 1 or 2 and for whom race/ethnicity was not provided by the school.

Type of Location (TOL3)

The variable TOL3 is used in the 1998 national and state assessments to provide information about school location types:

- | | | |
|---|-------------------------|---|
| 1 | Central City | (Large Central City and Midsize Central City) This category includes central cities of all MSAs. Central City is a geographic term and is not synonymous with “inner city.” |
| 2 | Urban Fringe/Large Town | (Urban Fringe of Large City, Urban Fringe of Midsize City, and Large Town) An Urban Fringe includes all densely settled places and areas within MSAs that are classified as urban by the Bureau of Census. A Large Town is defined as a place outside MSAs with a population greater than or equal to 25,000. |

- 3 Rural/Small Town (Small Town, Rural MSA, and Rural Non-MSA) Rural includes all places and areas with a population of less than 2,500 that are classified as rural by the Bureau of Census. A Small Town is defined as a place outside MSAs with a population of less than 25,000 but greater than or equal to 2,500.

Parents' Education Level (PARED2, PARED)

Parents' education was reported at four levels—*did not finish high school, graduated high school, had some education after high school, or graduated college*—gathered from student responses to questions about the extent of schooling experienced by each of their parents. In the 1998 assessment, this information was gathered in two different ways.

Students at grades 4, 8, and 12 in the writing and civics assessments and at grade 4 in the reading assessment were asked to respond to six questions (three for each parent) requiring a yes/no response. The response indicating the highest level of education was selected for reporting (PARED2).

At grades 8 and 12 in the reading assessment, a different procedure (one that had been used in previous reading assessments) was used to gather parental education data. Students were asked to select the appropriate level of education from one overall question for each parent. Again, the response indicating the highest level of education was selected for reporting (PARED).

Region of the Country (REGION)

Jurisdictions were grouped into four geographical regions—Northeast, Southeast, Central, and West—as shown in Table G-1. All 50 states and the District of Columbia are listed. The part of Virginia that is included in the Washington, D.C., metropolitan statistical area is included in the Northeast region; the remainder of the state is included in the Southeast region.

Table G-1
NAEP Geographic Regions

NORTHEAST	SOUTHEAST	CENTRAL	WEST
Connecticut	Alabama	Illinois	Alaska
Delaware	Arkansas	Indiana	Arizona
District of Columbia	Florida	Iowa	California
Maine	Georgia	Kansas	Colorado
Maryland	Kentucky	Michigan	Hawaii
Massachusetts	Louisiana	Minnesota	Idaho
New Hampshire	Mississippi	Missouri	Montana
New Jersey	North Carolina	Nebraska	Nevada
New York	South Carolina	North Dakota	New Mexico
Pennsylvania	Tennessee	Ohio	Oklahoma
Rhode Island	Virginia	South Dakota	Oregon
Vermont	West Virginia	Wisconsin	Texas
Virginia			Utah
			Washington
			Wyoming

Title I Participation (TITLE1)

Based on available school records, students were classified as either currently participating in a Title I program or receiving Title I services, or as not receiving such services. The classification applies only to the school year when the assessment was administered and is not based on participation in previous years. If the school did not offer any Title I programs or services, all students in that school were classified as not participating.

Eligibility for the Free/Reduced-Price School Lunch Program (SLUNCH1)

Based on available school records, students were classified as either currently eligible or not currently eligible for the free/reduced-price lunch component of the Department of Agriculture's National School Lunch Program. The classification refers only to the school year when the assessment was administered and is not based on eligibility in previous years. If school records were not available, the student was classified as "Information not available." If the school did not participate in the program, all students in that school were classified as "Information not available."

Type of School (SCHTY98, SCHTYPE)

School type information was initially provided by Westat and was used to determine the type of school that a student attended. The values for the variable SCHTY98 were identified as:

- | | |
|---|---|
| 1 | Public |
| 2 | Religious |
| 3 | Other |
| 4 | Catholic |
| 5 | Bureau of Indian Affairs |
| 6 | Department of Defense |
| 7 | State Department of Education (Charter) |

The SCHTY98 values were collapsed into a five-level variable called SCHTYPE:

- | | |
|---|--------------------------------------|
| 1 | Public (SCHTY98 categories 1 and 7) |
| 2 | Private (SCHTY98 categories 2 and 3) |
| 3 | Catholic |
| 4 | Bureau of Indian Affairs |
| 5 | Department of Defense |

G.2 WRITING DERIVED VARIABLES

Times Prewriting was Observed (WRIPRE)

For each cognitive item taken by each student, the corresponding rater 1 prewriting field was checked. Since students were given at most 2 essays, this variable ranged from 0-2. It was coded on the database as follows:

- 1 = no evidence of prewriting
- 2 = one essay showed evidence of prewriting
- 3 = both essays showed evidence of prewriting missing if both prewriting variables were missing.

This variable was used at all grades sampled for the national assessment (grade 4, grade 8, and grade 12). It was also used at grade 8 in the state assessment.

Types of Writing Assignments Reported (WRIASGN)

The following variables can be checked for any indication that these types of writing were assigned:

- W802801 Reports
- W802802 Essays--themes
- W802803 Essays-persuasive
- W802804 Story—narrative

Possible values for this variable were:

- 1 = none were assigned
- 2 = one was assigned
- 3 = two were assigned
- 4 = three were assigned
- 5 = all four were assigned
- miss = if two or more of the above variables were missing, a missing value code was assigned.

This variable was used at grades 8 and 12 for the national assessment and was used at grade 8 in the state assessment.

Writing Steps Used in Planning (WRISTEP)

The following variables can be checked for any indication that these types of writing were assigned:

- W802901 Asked to plan writing
- W802903 Define Purpose of Writing
- W802904 Use other sources besides textbook

Values 1-4 correspond to 0-3 steps used. If two or more were missing, the variable was coded as missing. This variable was used at grades 8 and 12 for the national assessment and was used at grade 8 in the state assessment.

Number of Types of Writing Feedback Received (WRIFDBK)

The following variables can be checked for any indication that these types of writing were assigned:

- W802001 Teacher Talks about what you are writing
- W802101 Teacher Asks to Write more than one Draft
- W802201 Teacher Asks to contribute Writing to a collection.

Values 1-4 correspond to 0-3 types used. If two or more were missing, the variable was coded as missing. This variable was used at all grades sampled for the national assessment (grade 4, grade 8, and grade 12). It was also used at grade 8 in the state assessment.

G.3 CIVICS DERIVED VARIABLES

Number of Years of Civics Classes Taken in High School (NYRCIV)

- 1 = none
- 2 = 1 year
- 3 = 2 years
- 4 = 3 years
- 5 = 4 years

(Value determined by number of “yes” responses to items P804601, P804602, P804603, and P804604)

Number of Years of Civics Classes Taken in High School - Grades 11 & 12 (NYRCIV2)

- 1 = none
- 2 = 1 year
- 3 = 2 years

(Value determined by number of “yes” responses to items P804603 and P804604)

- P804601 = grade 9 - studied civics or government
- P804602 = grade 10 - studied civics or government
- P804603 = grade 11 - studied civics or government
- P804604 = grade 12 - studied civics or government

A response of 1 = yes.

G.4 VARIABLES RELATED TO SCALING

Scale Score Variables

Student responses to the assessment questions were analyzed to determine the percentage of students responding correctly to each multiple-choice question and the percentage of students achieving each of the score categories for constructed-response questions. Item response theory (IRT) methods were used to produce scales that summarized results for each of the domains in the subject area. The scales for the state assessment were defined identically to, but separately from, those used for the scaling of the national data. Although the questions comprising each scale were identical to those used in the national assessment, the item parameters for the state assessment scales were estimated from combined public-school data from the jurisdictions participating in the state assessment program.

In 1992, a reading scale ranging from 0 to 500 was created to report performance for each reading purpose—Reading for Literary Experience, Reading to Gain Information, and Reading to Perform a Task (grades 8 and 12 only). The scales summarize student performance across all three types of questions in the assessment (multiple-choice, short constructed-response, and extended constructed-response). Results from subsequent reading assessments (1994 and 1998) are reported on these scales.

Each reading scale was initially based on the distribution of student performance across all three grades in the 1992 national assessment (grades 4, 8, and 12). In that year, the scales had an average of 250 and a standard deviation of 50. In addition, a composite scale was created as an overall measure of students' reading performance. This composite scale is a weighted average of the three separate scales for the three reading purposes.

The 1998 writing assessment results are reported on an overall scale for each of the grades—4, 8, and 12. For each grade, the range of the scale was 0 to 300, with an average of 150 and a standard deviation of 35. While the scale-score ranges are identical across grades, the scale was derived independently for each grade. The scales summarize performance across all three purposes for writing (narrative, informative, and persuasive) in the assessment. Note that the 50-minute prompts were not included in the scales.

The 1998 civics assessment results are reported on an overall scale for each of the grades—4, 8, and 12. For each grade, the range of the scale was 0 to 300, with an average of 150 and a standard deviation of 35. While the scale-score ranges are identical across grades, the scale was derived independently for each grade.

The scale score variable names for each subject area are shown in Table G-2.

Table G-2
Scaling Variables for the 1998 National and State Assessment Samples

Sample	Scale	Data Variables
Reading Main	Reading for Literary Experience	RRPS11 to RRPS15
	Reading to Gain Information	RRPS21 to RRPS25
	Reading to Perform a Task	RRPS31 to RRPS35
	Composite	RRPCM1 to RRPCM5
Writing Main	—	WRIRP1 to WRIRP5
Civics Main	—	CIVRP1 to CIVRP5
Reading State	Reading for Literary Experience	RRPS11 to RRPS15
	Reading to Gain Information	RRPS21 to RRPS25
	Reading to Perform a Task	RRPS31 to RRPS35
	Composite	RRPCM1 to RRPCM5
Writing State	—	WRIRP1 to WRIRP5

G.5 QUALITY EDUCATION DATA (QED) VARIABLES

The data files contain several variables obtained from information supplied by Quality Education Data, Inc. (QED). QED maintains and annually updates lists of schools showing grade span, total enrollment, instructional dollars per pupil, and other information for each school. These data variables are retained on both the school and student files and are identified in the data layouts by “(QED)” in the SHORT LABEL field.

Most of the QED variables are defined sufficiently in the data codebooks. Explanations of others are provided below.

ORSHPT is the Orshansky Percentile, an indicator of relative wealth that specifies the percentage of school-age children in a district who fall below the poverty line.

IDP represents, at the school district level, dollars per student spent for textbooks and supplemental materials. The range code for instructional dollars spent per pupil excluding teacher salaries are:

0 = Unclassified	5 = \$150–299
1 = Under \$10	6 = \$300–399
2 = \$10–49	7 = \$400–499
3 = \$50–99	8 = \$500–999
4 = \$100–149	9 = \$1,000 +

ADULTED indicates whether or not adult education courses are offered at the school site.

URBAN defines the school’s urbanization: urban (central city); suburban (area surrounding central city, but still located within the counties constituting the metropolitan statistical area); or rural (area outside any metropolitan statistical area).

Appendix H

ESTIMATION ERROR VARIANCE OF THE MEAN BY GENDER AND RACE/ETHNICITY

Table H-1

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 4 Literary Scale*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.72	0.84	0.16
Male	1.34	0.84	0.16
Female	0.69	0.75	0.25
White	0.98	0.82	0.18
Black	2.89	0.73	0.27
Hispanic	3.93	0.74	0.26
Asian American	10.65	0.60	0.40
Native American	15.65	0.67	0.33
Other Race/Ethnicity	278.37	0.75	0.25
Public Schools	0.79	0.85	0.15
Private Schools	19.60	0.88	0.12
Catholic Schools	7.83	0.84	0.16

Table H-2

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 4 Information Scale*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.88	0.85	0.15
Male	1.67	0.85	0.15
Female	0.86	0.71	0.29
White	0.99	0.81	0.19
Black	4.09	0.77	0.23
Hispanic	3.55	0.78	0.22
Asian American	10.63	0.68	0.32
Native American	12.94	0.57	0.43
Other Race/Ethnicity	272.48	0.74	0.26
Public Schools	1.02	0.86	0.14
Private Schools	28.32	0.92	0.08
Catholic Schools	7.64	0.82	0.18

Table H-3
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 4 Composite Scale

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.64	0.89	0.11
Male	1.27	0.91	0.09
Female	0.58	0.78	0.22
White	0.76	0.87	0.13
Black	2.75	0.83	0.17
Hispanic	3.17	0.82	0.18
Asian American	8.02	0.77	0.23
Native American	11.26	0.73	0.27
Other Race/Ethnicity	256.98	0.78	0.22
Public Schools	0.72	0.90	0.10
Private Schools	20.83	0.94	0.06
Catholic Schools	6.17	0.90	0.10

Table H-4
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 8 Literary Scale

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.75	0.85	0.15
Male	1.14	0.85	0.15
Female	0.76	0.75	0.25
White	0.99	0.81	0.19
Black	2.15	0.70	0.30
Hispanic	4.83	0.86	0.14
Asian American	9.76	0.74	0.26
Native American	32.90	0.63	0.37
Other Race/Ethnicity	56.85	0.72	0.28
Public Schools	0.79	0.85	0.15
Private Schools	22.69	0.88	0.12
Catholic Schools	3.56	0.74	0.26

Table H-5
*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 8 Information Scale*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.77	0.91	0.09
Male	1.05	0.85	0.15
Female	0.94	0.87	0.13
White	1.01	0.88	0.12
Black	2.36	0.78	0.22
Hispanic	5.48	0.90	0.10
Asian American	10.70	0.86	0.14
Native American	31.86	0.77	0.23
Other Race/Ethnicity	107.14	0.82	0.18
Public Schools	0.80	0.90	0.10
Private Schools	14.86	0.88	0.12
Catholic Schools	4.25	0.77	0.23

Table H-6
*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 8 Perform a Task Scale*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.89	0.87	0.13
Male	1.21	0.84	0.16
Female	1.23	0.76	0.24
White	1.07	0.87	0.13
Black	3.65	0.73	0.27
Hispanic	6.24	0.83	0.17
Asian American	47.06	0.92	0.08
Native American	32.81	0.57	0.43
Other Race/Ethnicity	69.90	0.73	0.27
Public Schools	1.10	0.87	0.13
Private Schools	11.17	0.72	0.28
Catholic Schools	7.68	0.78	0.22

Table H-7
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 8 Composite Scale

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.62	0.93	0.07
Male	0.89	0.92	0.08
Female	0.69	0.89	0.11
White	0.78	0.91	0.09
Black	1.83	0.87	0.13
Hispanic	4.45	0.94	0.06
Asian American	13.44	0.94	0.06
Native American	24.42	0.82	0.18
Other Race/Ethnicity	59.77	0.81	0.19
Public Schools	0.67	0.93	0.07
Private Schools	13.75	0.93	0.07
Catholic Schools	2.89	0.88	0.12

Table H-8
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 12 Literary Scale

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	1.07	0.79	0.21
Male	2.14	0.78	0.22
Female	1.16	0.59	0.41
White	1.06	0.70	0.30
Black	5.37	0.69	0.31
Hispanic	5.30	0.71	0.29
Asian American	35.61	0.88	0.12
Native American	69.31	0.45	0.55
Other Race/Ethnicity	343.58	0.82	0.18
Public Schools	1.37	0.81	0.19
Private Schools	32.39	0.85	0.15
Catholic Schools	7.99	0.72	0.28

Table H-9

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 12 Information Scale*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.44	0.80	0.20
Male	0.84	0.82	0.18
Female	0.51	0.71	0.29
White	0.59	0.78	0.22
Black	2.27	0.83	0.17
Hispanic	2.24	0.79	0.21
Asian American	6.81	0.82	0.18
Native American	29.52	0.69	0.31
Other Race/Ethnicity	125.18	0.80	0.20
Public Schools	0.49	0.81	0.19
Private Schools	19.48	0.92	0.08
Catholic Schools	2.98	0.76	0.24

Table H-10

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 12 Perform a Task Scale*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.62	0.75	0.25
Male	1.24	0.76	0.24
Female	0.84	0.56	0.44
White	0.76	0.75	0.25
Black	3.35	0.61	0.39
Hispanic	3.44	0.68	0.32
Asian American	6.60	0.49	0.51
Native American	60.54	0.61	0.39
Other Race/Ethnicity	352.21	0.91	0.09
Public Schools	0.73	0.77	0.23
Private Schools	24.47	0.84	0.16
Catholic Schools	6.07	0.70	0.30

Table H-11
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Reading Grade 12 Composite Scale

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.51	0.88	0.12
Male	1.04	0.90	0.10
Female	0.53	0.75	0.25
White	0.57	0.85	0.15
Black	2.54	0.85	0.15
Hispanic	2.56	0.84	0.16
Asian American	11.26	0.91	0.09
Native American	32.66	0.74	0.26
Other Race/Ethnicity	212.15	0.89	0.11
Public Schools	0.62	0.88	0.12
Private Schools	21.23	0.95	0.05
Catholic Schools	3.62	0.87	0.13

Table H-12
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Writing Grade 4

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.37	0.90	0.10
Male	0.48	0.83	0.17
Female	0.46	0.82	0.18
White	0.48	0.85	0.15
Black	0.76	0.79	0.21
Hispanic	1.54	0.92	0.08
Asian American	6.05	0.82	0.18
Native American	4.31	0.69	0.31
Other Race/Ethnicity	26.04	0.82	0.18
Public Schools	0.48	0.91	0.09
Private Schools	4.26	0.81	0.19
Catholic Schools	1.86	0.83	0.17

Table H-13

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Writing Grade 8*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.41	0.94	0.06
Male	0.63	0.92	0.08
Female	0.42	0.83	0.17
White	0.56	0.92	0.08
Black	0.95	0.74	0.26
Hispanic	1.70	0.91	0.09
Asian American	12.38	0.95	0.05
Native American	7.50	0.72	0.28
Other Race/Ethnicity	16.15	0.61	0.39
Public Schools	0.44	0.94	0.06
Private Schools	5.04	0.87	0.13
Catholic Schools	1.90	0.79	0.21

Table H-14

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Writing Grade 12*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.44	0.93	0.07
Male	0.58	0.90	0.10
Female	0.50	0.85	0.15
White	0.54	0.89	0.11
Black	1.70	0.87	0.13
Hispanic	1.29	0.80	0.20
Asian American	9.31	0.92	0.08
Native American	14.32	0.71	0.29
Other Race/Ethnicity	68.28	0.88	0.12
Public Schools	0.56	0.94	0.06
Private Schools	8.90	0.89	0.11
Catholic Schools	3.48	0.90	0.10

Table H-15

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Civics Grade 4*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.54	0.90	0.10
Male	0.88	0.89	0.11
Female	0.70	0.84	0.16
White	0.76	0.89	0.11
Black	1.43	0.66	0.34
Hispanic	3.08	0.89	0.11
Asian American	7.47	0.76	0.24
Native American	13.47	0.81	0.19
Other Race/Ethnicity	62.68	0.81	0.19
Public Schools	0.60	0.90	0.10
Private Schools	18.89	0.93	0.07
Catholic Schools	3.20	0.82	0.18

Table H-16

*Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Civics Grade 8*

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.52	0.91	0.09
Male	0.95	0.92	0.08
Female	0.58	0.85	0.15
White	0.73	0.93	0.07
Black	1.34	0.77	0.23
Hispanic	1.40	0.80	0.20
Asian American	32.61	0.97	0.03
Native American	12.70	0.79	0.21
Other Race/Ethnicity	86.74	0.81	0.19
Public Schools	0.56	0.90	0.10
Private Schools	35.17	0.98	0.02
Catholic Schools	2.78	0.93	0.07

Table H-17
Estimation Error Variance of the Mean for the 1998 NAEP Assessment
National Main Civics Grade 12

	Total Variance	Proportion of Variance Due to . . .	
		Student Sampling	Latency of θ
Total	0.62	0.95	0.05
Male	1.22	0.93	0.07
Female	0.65	0.92	0.08
White	0.80	0.95	0.05
Black	2.79	0.91	0.09
Hispanic	1.86	0.80	0.20
Asian American	18.08	0.96	0.04
Native American	36.61	0.87	0.13
Other Race/Ethnicity	79.30	0.75	0.25
Public Schools	0.78	0.95	0.05
Private Schools	9.19	0.93	0.07
Catholic Schools	2.37	0.93	0.07

Appendix I

SETTING THE ACHIEVEMENT LEVELS FOR THE 1998 NAEP READING ASSESSMENT

Mary Lyn Bourque
National Assessment Governing Board

I.1 INTRODUCTION

The 1998 National Assessment of Educational Progress (NAEP) reading assessment used the same achievement levels that were developed for the 1994 assessment. This appendix describes the process originally used in 1994.

Since 1984, NAEP has reported the performance of students in the nation and for specific subpopulations on a 0-to-500 score scale. The history and development of the scale and the anchoring procedure used to interpret specific points on that scale are described in Appendix G of *The NAEP 1992 Technical Report* (Johnson & Carlson, 1994).

The 1988 NAEP legislation (Hawkins-Stafford Education Improvement Act Amendments of 1988) created an independent board, the National Assessment Governing Board (NAGB), responsible for setting policy for the NAEP program. The 1994 NAEP reauthorization (Improving America's Schools Act of 1994) continued many of the board's statutory responsibilities, including developing appropriate student performance standards for each age and grade in each subject area to be tested under the national assessment. Consistent with this directive, and striving to achieve one of the primary mandates of the statute to improve the form and use of NAEP results, the board has been developing student performance standards (called achievement levels by NAGB) on the national assessment since 1990.

The 1990 standard-setting effort, initiated in December 1989 with the dissemination of a draft policy statement (NAGB, 1989) and culminating 22 months later in the publication of the NAGB report, *The Levels of Mathematics Achievement* (Bourque & Garrison, 1991), consisted of two phases: the main study and a replication-validation study. Although there were slight differences between the two phases, there were many common elements. Both phases used a modified (iterative/empirical) Angoff (1971) procedure for arriving at the levels; both focused on estimating performance levels based on a review of the 1990 NAEP mathematics item pool; and both phases employed policy definitions for basic, proficient, and advanced levels (NAGB, 1990) as the criteria for rating items. The 1990 process was evaluated by a number of different groups (for a discussion, see Hambleton & Bourque, 1991) who identified technical flaws in the 1990 process. These evaluations influenced the board's decision to set the levels again in 1992, and not to use the 1990 levels as benchmarks for progress toward the national goals during the coming decade. It is interesting to note, however, that the 1990 and 1992 processes produced remarkably similar results.

In September 1991, the board contracted with American College Testing (ACT) to convene the panels of judges that would recommend the levels on the 1992 NAEP assessments in reading, writing, and mathematics. While the 1992 level-setting activities were not unlike those undertaken by the board in 1990, there were significant improvements made in the process for 1992. There was a concerted effort to bring greater technical expertise to the process: The contractor selected by the board has a national reputation for setting standards in a large number of certification and licensure exams; an internal and external advisory team monitored all the technical decisions made by the contractor throughout the

process; and state assessment directors periodically provided their expertise and technical assistance at key stages in the project.

Setting achievement levels is a method for setting standards on the NAEP assessment that identify what students should know and be able to do at various points along the score scale. The initial policy definitions of the achievement levels were presented to panelists along with an illustrative framework for more in-depth development and operationalization of the levels. Panelists were asked to determine descriptions or definitions of the three levels from the specific framework developed for the NAEP assessment with respect to the content and skills to be assessed. The operationalized definitions were refined throughout the level-setting process, as well as validated with a supplementary group of judges subsequent to the level-setting meetings. Panelists were also asked to develop a list of illustrative tasks associated with each of the levels, after which sample items from the NAEP item pool were identified to exemplify the full range of performance of the intervals between levels. The emphasis in operationalizing the definitions and in identifying and selecting exemplar items and papers was to represent the full range of performance from the lower level to the next higher level. The details of the implementation procedures are outlined in the remainder of this appendix.

I.2 1992 PREPARATION FOR THE READING LEVEL SETTING MEETING

It is important for the planning of any standard-setting effort to know how various process elements interact with each other. For example, panelists interact with premeeting materials, meeting materials (i.e., the assessment items, rating forms, rater feedback, and so forth), each other, and the project staff. All of these elements combine to promote or degrade what has been called intrajudge consistency and interjudge consensus (Friedman & Ho, 1990).

Previous research has conceptualized the effects of two major kinds of interaction: (1) people interacting with text (Smith & Smith, 1988), and (2) people interacting with each other (Curry, 1987; Fitzpatrick, 1989). In order to assess the effects of textual and social interaction and adjust the standard-setting procedures accordingly, a pilot study was conducted as the first phase of the 1992 initiative.

Reading was chosen as the single content area to be pilot tested, since it combined all of the various features found in the other NAEP assessments, including multiple-choice and both short and extended constructed-response items. The pilot study provided the opportunity to implement and evaluate all aspects of the operational plan—background materials, meeting materials, study design, meeting logistics, staff function, and participant function.

The overall pilot was quite successful. The level-setting process worked well, and the pilot allowed the contractor to make improvements in the design before implementation activities began. For example, schedule changes were made that allowed the panelists more time to operationalize the policy definitions before beginning the item-rating task. Also, the feedback mechanisms used to inform panelists about interjudge and intrajudge consistency data were improved for clarity and utility to the entire process.

I.3 1992 READING LEVEL SETTING PANEL

Sixty-four panelists representing 32 jurisdictions (31 states and Virgin Islands) were selected from the 366 nominees and invited to participate in the level-setting process. They represented reading/language arts teachers at grades 4, 8, and 12, nonteacher educators, and members of the noneducator (general public) community. The group was balanced by gender, race/ethnicity, NAEP regions of the country, community type (low SES, not low SES), district size, and school type

(public/nonpublic). Two panelists were unable to attend for personal reasons, resulting in 62 participants, 22 at grade 4, 20 at grade 8, and 20 at grade 12.

I.4 1992 PROCESS FOR DEVELOPING THE ACHIEVEMENT LEVELS

The four-and-one-half-day session began with a brief overview of NAEP and NAGB, a presentation on the policy definitions of the achievement levels, a review of the NAEP reading assessment framework, and a discussion of factors that influence item difficulty. The purpose of the presentation was to focus panelists' attention on the reading framework and to emphasize the fact that panelists' work was directly related to the NAEP assessment, not to the whole domain of reading.

All panelists completed and self-scored an appropriate grade-level form of the NAEP assessment. The purpose of this exercise was to familiarize panelists with the test content and scoring protocols—as well as time constraints—before beginning to develop the preliminary operationalized descriptions of the three levels.

Working in small groups of five or six, then eventually in grade-level groups, panelists expanded and operationalized the policy definitions of basic, proficient, and advanced in terms of specific reading skills, knowledge, and behaviors that were judged to be appropriate expectations for students in each grade, and to be in accordance with the current reading assessment framework.

The policy definitions¹ are as follows:

Basic This level, below proficient, denotes partial mastery of the knowledge and skills that are fundamental for proficient work at each grade—4, 8, and 12.

Proficient This central level represents solid academic performance for each grade tested—4, 8, and 12. Students reaching this level have demonstrated competency over challenging subject matter and are well prepared for the next level of schooling.

Advanced This higher level signifies superior performance beyond proficient grade-level mastery at grades 4, 8, and 12.

The small groups were allowed to brainstorm about what student performance should be, using the framework and their experience in completing the NAEP assessment as guides.² In addition, a practice task caused panelists to examine items in the half of the item pool that they would not be rating later. A comprehensive listing of grade-level descriptors was developed, and panelists were asked to identify the five or six that best described what students should be able to do at each of the levels. Those descriptors appearing with the greatest frequency were compiled into a discussion list for the grade-level groups. Additions, deletions, and modifications were made as a result of discussions, and the groups reached general agreement that the final list of descriptors represented what students should be able to do at each achievement level.

¹ NAGB revised its policy definitions on achievement levels in late 1993. The *Proficient* level now reads: This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter. *Basic* and *Advanced* remain virtually unchanged.

² The panelists also reviewed about half the item pool (the half they would not be rating later) so that the descriptors could be further modified if that was deemed appropriate.

Panelists next received training in the Angoff method, which was customized to reflect the unique item formats of the particular subject-area assessment. Once a conceptual consensus was reached about the characteristics of marginally acceptable performance at each of the three levels, practice items from the released pool were rated by the panelists according to the process defined in the contractor's plan. For multiple-choice and short constructed-response items (both of which were scored right or wrong), panelists were asked to rate each item for the expected probability of a correct response for a group of marginally acceptable examinees at the basic, proficient, and advanced levels. For extended constructed-response items (which were scored on a four-point rating scale using a partial-credit model), panelists were asked to review a set of student response papers and select three papers, one for each achievement level, that typified marginally acceptable examinee performance for that level.

Following training in the Angoff method, the judges began the rating and paper selection process, inspecting and rating each dichotomously scored item in the pool for the expected probabilities of answering the item correctly at each level. For polytomously scored items, panelists reviewed a representative set of 24 to 28 student response papers for each item and selected the paper that best represented marginally acceptable student performance at each level. Panelists completed three rounds of item ratings and paper selections. For Round 1, panelists first answered the items related to a reading passage, then reviewed their answers using scoring keys and protocols. This process helped ensure that panelists would be thoroughly familiar with each item, including the foils and scoring rubrics, before rating the item. Panelists provided item ratings and paper selections for all three achievement levels, one item at a time, for all the items related to a reading passage. They then proceeded to the next reading passage and set of items, for which the process was repeated. Panelists rated items for half the items in their grade-level assessment; one block of exercises was common to both halves of the grade-level groups. During Round 1, panelists used their lists of descriptors and other training materials for guidance in the rating process.

Following Round 1, item response theory (IRT) was used to convert the rating results³ for each rater to a latent ability scale, represented by the Greek letter theta (θ). This θ scale was the same scale to which the NAEP items evaluated by each panelist were calibrated. In order to provide meaningful feedback about item ratings, a special relative scale was constructed, which was a linear transformation of the theta scale having a mean of 75 and standard deviation of 15. Before Round 2 of the rating process, panelists were given interjudge consistency information using this relative scale. This information allowed panelists to see where their individual mean item ratings were on the scale, relative to the mean for the group and to the means for other panelists. Reasons for extreme mean ratings, including the possibility that some panelists misinterpreted the item rating task, were discussed.

Before Round 2, panelists were also given item difficulty data. This information was presented as the overall percentage of students who answered each item correctly during the actual NAEP administration, for items scored "correct" or "incorrect" (i.e., multiple-choice and short constructed-response items), and as the mean score for student responses (on a scale of 1 to 4) for the extended constructed-response items. Panelists were told that this item difficulty information should be used as a reality check. For items on which item ratings differed substantially from the item difficulty value, panelists were asked to reexamine the item to determine if they had misinterpreted the item or misjudged its difficulty. Results of the data analysis, and panelists' own evaluations, indicated that the item difficulty information was perceived as very useful but had little impact on panelists' ratings.

For Round 2, panelists reviewed the same set of items they rated in Round 1 and, using the interjudge consistency information, the item difficulty information, and the information provided prior to Round 1, they either confirmed their initial item ratings and paper selections or adjusted their ratings to

³ Because the IRT item parameters were not available for the polytomously scored (extended constructed-response) items, these items were not included in the following discussion of results.

reflect the additional information. About one-half of Round 1 item ratings and paper selections were adjusted during Round 2.

Prior to Round 3, panelists' ratings were reanalyzed and additional information was presented to panelists concerning intrajudge variability. For each panelist, the intrajudge variability information consisted of those items that they had rated differently than items having similar difficulty, taking into consideration the panelist's aggregated item ratings. That is, the panelists' aggregated item ratings were converted to the theta (θ) scale. All items rated by the panelists were then analyzed in terms of the panelist's achievement level (θ) in comparison to actual student performance on the items. The observed item rating from each panelist was contrasted to an expected item rating. Those items with the largest differences between observed and expected ratings were identified. Panelists were given this information and asked to review each of these items and decide if their Round 2 ratings still accurately reflected their best judgments of the items. The intrajudge consistency data was to be used to flag items for reconsideration in the final round of rating.

For Round 3, panelists reviewed the same set of items they rated in Rounds 1 and 2 using both the new intrajudge variability information and the information made available during Rounds 1 and 2. In addition, panelists could discuss, within their small groups, ratings and paper selections for specific items about which they were unsure. About one-third of the item ratings were adjusted during Round 3.

I.5 1992 PROCESS FOR SELECTING EXEMPLAR ITEMS

On the final day of the achievement level-setting process, panelists reviewed items from the 1992 item pool scheduled for release to the public. The released item pool was the set from which the panelists could select items illustrative of the achievement levels for their grade. Exercises are organized in blocks, consisting of a reading passage, followed by several items, usually employing each of the three item formats, (i.e., multiple-choice, short constructed-response, and extended constructed-response). A total of 10 blocks from the 1992 exercise pool were scheduled for release: 2 blocks from the fourth-grade pool, totaling 19 items; 4 blocks from the eighth-grade pool, totaling 52 items; and 4 blocks from the twelfth-grade pool, totaling 46 items.

Panelists who had rated specific blocks of released items were asked to review those same items again to select particular ones as exemplary of each achievement level. The items were preassigned to each achievement level based on the final round of the judges' rating data, and using the following statistical criteria. For any given level (basic, proficient, or advanced),

1. items having an expected p -value⁴ $>.501$ and $<.750$, at that level, were assigned to that level;
2. items meeting the criteria at more than one level were assigned to one level taking both the expected p -value and the appropriateness of the item for one of the levels into account; and
3. because the content of items was given equal consideration in the selection process, items with expected p -values $<.501$ were assigned to levels where a specific passage had few or no items at that level.

For example, the raters' expected p -value for one of the released items might have been .366 at the basic level, .701 at the proficient level, and .932 at the advanced level. This item would have been

⁴ Expected p -values were based on the average predicted performance at the cut point for each achievement level.

identified for review as a potential exemplar item for the proficient level. The expected p -value at the basic level was too low for consideration as a basic-level exemplar (that is, the item was judged to be too difficult), and the expected p -value at the advanced level was too high for consideration at the advanced level (that is, the item was judged to be too easy). Table I-1 shows the results of this process for each grade and level.

Table I-1
Results of First Review for Achievement-Level Exemplars

Level/Status	Grade 4	Grade 8	Grade 12	All Grades
Total Released	19	52	46	117
Basic				
Reviewed	4	12	18	34
Recommended	3	5	14	22
Proficient				
Reviewed	5	14	20	39
Recommended	4	12	9	25
Advanced				
Reviewed	5	6	7	18
Recommended	5	6	8	19

Panelists were asked to review the items as classified, and form an individual judgment regarding the suitability of each item to illustrate and further communicate the meaning of the levels. Each item’s classification could be accepted, rejected, or reassigned, although the procedure was primarily designed to eliminate items that did not meet panelists’ expectations for any reason. Items were reclassified if a strong consensus was found to hold for that change.

During the validation process, described in the next section, items were again reviewed. Those that had been selected by the original standard-setting panel were grouped into sets of preselected items. All remaining items in the released blocks that met the statistical criteria, but were not recommended by the original panel, were grouped into a set identified as additional items for review. Exercises that had been recommended for reclassification into another achievement-level category were presented in their original classification for purposes of this review. As Table I-2 shows, 21 items were recommended as exemplars for the basic level, 17 for the proficient level, and 9 for the advanced.

Table I-2
Results of Review of Additional Items for Achievement-Level Exemplars

Level/Status	Grade 4	Grade 8	Grade 12	All Grades
Total Items Recommended	13	13	21	47
Basic				
Reviewed	3	12	12	27
Recommended	6	7	8	21
Proficient				
Reviewed	4	13	11	28
Recommended	6	3	8	17
Advanced				
Reviewed	5	8	9	22
Recommended	1	3	5	9

I.6 1992 PROCESS FOR VALIDATING THE LEVELS

Nineteen reading educators participated in the item-selection and content-validation process. Ten of the panelists were reading teachers who had participated in the original achievement level-setting process and who had been identified as outstanding panelists by grade group facilitators during this meeting, who were extensively involved with professional organizations (e.g., the International Reading Association, the National Reading Conference, or the National Council for Teachers of English), and who had outstanding service credentials. The other nine panelists represented state-level reading curriculum supervisors or assessment directors, as well as university faculty teaching in disciplines related to this subject area. To the extent possible, the group was balanced by race/ethnicity and gender.

The two-and-one-half-day meeting began by briefing panelists on the purpose of the meeting and by giving them an overview of the level-setting process and results. Panelists first reviewed the operationalized descriptions of the achievement levels for qualities such as (1) within- and across-grade consistency, (2) grade-level appropriateness, and (3) utility for increasing the public's understanding of the NAEP reading results. Next, panelists reviewed the operationalized descriptions of the achievement levels for consistency with the NAGB policy definitions of basic, proficient, and advanced with the NAEP reading objectives. Working in grade-level (4, 8, and 12) groups of six to seven panelists each, then as a whole group, panelists reviewed the operationalized descriptions to provide within- and across-grade consistency, and to align the language and concepts of the descriptions more closely with the language of the NAEP reading objectives. (Both the original descriptions and the revised descriptions are included later in this appendix.) Finally, panelists suggested revisions they thought would improve the operational descriptions based on their earlier reviews.

On the final day, panelists worked in grade-level groups to review the possible exemplar items. The task was to select a set of items, for each achievement level for their grade, that would best communicate to the public the levels of reading ability and the types of skills needed to perform in reading at that level.

After selecting sets of items for their grades, the three grade-level groups met as a whole group to review item selection. During this process, cross-grade items that had been selected as exemplars for two grades (two such items were selected for grades 8 and 12) were assigned to one grade by whole-group consensus. In addition, items were evaluated by the whole group for overall quality. This process yielded 13 items as recommended exemplars for grade 4, 13 items as recommended exemplars for grade 8, and 21 items as recommended exemplars for grade 12.

I.7 EVALUATION OF THE 1992 LEVELS

The 1992 achievement levels in both mathematics and reading were evaluated under a Congressional mandate by the National Academy of Education (NAE). A series of research studies were mounted by the NAE (1993a; 1993b) to look at various aspects of the validity of the level-setting process and the levels finally adopted by NAGB. Three of the studies focused specifically on the reading achievement levels, and were conducted for the NAE panel by staff at the Center for the Study of Reading at the University of Illinois at Urbana–Champaign. The first study examined the process for setting the levels in reading; the second study provided an analysis of the reading achievement levels descriptions; and the third focused on a comparison of the reading cut scores with those set by alternative means. Based on these studies the NAE’s policy report concluded that the achievement levels were flawed and should be discontinued as a means of reporting NAEP data.

While NAGB did not agree with the conclusions reached in the NAE studies, and while the board’s technical advisors and contractor did not believe the weight of the evidence supported the conclusions reached by the NAE (American College Testing, 1993; Cizek, 1993; Kane, 1993), the board agreed to support further investigation into the validity of the reading achievement levels through additional studies prior to the release of the 1994 NAEP reading data, since the board planned on using the levels to report the 1994 NAEP data.

I.8 1994 PROCESS FOR VALIDATING THE LEVELS

The methodology developed by ACT to examine the reading achievement levels descriptions required the use of reading professionals (teachers and nonteacher educators) to review the descriptions in relation to the 1992 reading item pool. Fifty-eight panelists (about 20 at each grade level) were assigned to two different task groups, A and B. Group A employed the item difficulty categorization (IDC) procedure, while Group B used a judgmental item categorization (JIC) procedure. The goal of both task groups was to identify any lack of congruence between the item pool and the achievement-level descriptions.

The IDC procedure examined the level of support for the descriptions as evidenced by performance on the NAEP items. Items were preselected for each achievement level using a response probability (*rp*) criterion of 0.50 at the lower borderline (can do items). Those items not meeting the same *rp* criterion at the upper borderline of the level were categorized as “can’t do” items, while those items meeting the *rp* criterion anywhere in the range (from lower borderline to upper borderline) of the achievement level were labeled “challenging” items. Panelists were trained to examine the items in each of the three categories and determine whether or not the cognitive demand of the item matched the skills and knowledge identified in the descriptions. Mismatches were identified and later resolved or accounted for through a grade-level procedure involving the JIC group.

The JIC procedure asked panelists to assign items to levels based on their judgment of where it belonged, given the achievement-levels descriptions. Items were assigned to the lowest level of performance required to respond correctly to the item. All items were assigned to levels independently by judges in the first round. Then, working in small groups and finally in the total group, assignments were confirmed or moderated through a consensus process.

The final grade-level procedure brought both groups A and B together to jointly evaluate the descriptions vis a vis performance on the item pool. The goal of the grade-level procedure was to reach general agreement on the extent of (or lack of) agreement between the descriptions and the item pool, employing somewhat different approaches to the question.

On the basis of the validation process only one recommendation was made by the panelists to improve the descriptions and bring them more in line with the performance data they had examined during the process. The general conclusion was that reference to an ability to make inferences should be included in the description of Basic-level achievement at each grade level. An adjustment has been made in the 1994 descriptions to reflect that recommendation.

I.9 1994 EXEMPLARS

The purpose of providing exemplar exercises is to provide readers with a sample of the kind of skills and knowledge that students reaching the achievement levels are likely to be able to respond to successfully. They are meant also to represent the kind of knowledge and skills embodied in the reading framework.

The selection of exemplar items for the 1994 reading assessment augment the 1992 exemplars by providing three additional passages (one for each grade level) and 13 additional exercises associated with the passages. The choice was made on the basis of criteria similar to those used in 1992, with one additional selection criterion, namely, item format. Since the percent of constructed-response items increased by approximately 10 percent over the 1992 assessment, the choice of 1994 exemplars reflects this focus.

It should be noted that although some exemplars are associated with performance data from the 1992 and 1994 assessments (overall and conditional *p*-values), others have only 1992 performance estimates, since they were released items in 1992 and not readministered in 1994. However, they are all reflective of the assessment framework.

I.10 MAPPING THE LEVELS ONTO THE NAEP SCALE

The process of mapping panelists' ratings to the NAEP scales used item response theory (IRT). IRT provided statistically sophisticated methods for determining the expected performance of examinees on particular test items in terms of an appropriate measurement scale. The same measurement scale simultaneously described the characteristics of the test items and the performance of the examinees. Once the item characteristics were set, it was possible to determine precisely how examinees were likely to perform on the test items at different points of the measurement scale.

The panelists' ratings of the NAEP test items were likewise linked, by definition, to the expected performance of examinees at the theoretical achievement-level cut points. It was therefore feasible to use the IRT item characteristics to calculate the values on the measurement scale corresponding to each achievement level. This was done by averaging the item ratings over panelists for each achievement level and then simply using the item characteristics to find the corresponding achievement-level cut points on the IRT measurement scale. This process was repeated for each of the NAEP reading scales within each grade (4, 8, and 12).

For the multiple-choice and short constructed-response items that were dichotomously scored, the judges each rated half of the items in the NAEP pool in terms of the expected probability that a student at a borderline achievement level would answer the item correctly, based on the judges' operationalization of the policy definitions and the factors that influence item difficulty. To assist the judges in generating consistently scaled ratings, the rating process was repeated twice, with feedback. Information on consistency among different judges and on the difficulty of each item⁵ was fed back into

⁵ Item difficulty estimates were based on a preliminary, partial set of responses to the national assessment.

the first repetition (Round 2), while information on consistency within each judge’s set of ratings was fed back into the second repetition (Round 3). The third round of ratings permitted the judges to discuss their ratings among themselves to resolve problematic ratings. The judges’ mean final rating aggregated across multiple-choice and short constructed-response items, yielded the threshold values for these items in the percent correct metric. These cut scores were then mapped onto the NAEP scale (which is defined and scored using item response theory, rather than percent correct).

For extended constructed-response items, judges were asked to select student papers that exemplified performance at the cut point of each achievement level. Then for each achievement level, the mean of the scores assigned to the selected papers was mapped onto the NAEP scale in a manner similar to that used for the items scored dichotomously.

The final cut score for each achievement level was a weighted average of the cut score for the multiple-choice and short constructed-response items and the cut score for the extended constructed-response items, with the weights being proportional to the information supplied by the two classes of items. The judges’ ratings, in both metrics, are shown for grade 4 in Table I-3.

Table I-3
Cut Points for Achievement Levels – Grade 4

	Mean Percent Correct, Multiple-Choice and Short Constructed- Response (Round 3)	Mean Paper Rating, Extended Constructed-Response (Round 3)	Scale Score*	Standard Error of Scale Score**
Basic	38	2.72	208	(3.6)
Proficient	62	3.14	238	(1.4)
Advanced	80	3.48	268	(6.1)

** Scale score is derived from a weighted average of the mean percents correct for multiple-choice and short constructed-response items and the mean paper ratings for extended constructed-response items after both were mapped onto the NAEP scale.*

*** The standard error of the scale is estimated from the difference in mean scale scores for the two equivalent subgroups of judges.*

In the final stage of the mapping process, the achievement-level cut points on the IRT measurement scale were combined over content areas and rescaled to the NAEP score scale. Weighted averages of the achievement-level cut points were computed. The weighting constants accounted for the measurement precision of the test items evaluated by the panelists, the proportion of items belonging to each NAEP content area, and the linear NAEP scale transformations. These weighted averages produced the final cut points for the basic, proficient, and advanced achievement levels within each grade.

Figure I-1
Final Descriptions of 1992 Reading Achievement Levels

PREAMBLE

Reading for meaning involves a dynamic, complex interaction between and among the reader, the text, and the context. Readers, for example, bring to the process their prior knowledge about the topic, their reasons for reading it, their individual reading skills and strategies, and their understanding of differences in text structures.

The texts used in the reading assessment are representative of common real world reading demands. Students at grade 4 are asked to respond to literary and informational texts which differ in structure, organization, and features. Literary texts include short stories, poems, and plays that engage the reader in a variety of ways, not the least of which is reading for fun. Informational texts include selections from textbooks, magazines, encyclopedias, and other written sources whose purpose is to increase the reader's knowledge.

In addition to literary and informational texts, students at grades 8 and 12 are asked to respond to practical texts (e.g., bus schedules or directions for building a model airplane) that describe how to perform a task. The context of the reading situation includes the purposes for reading that the reader might use in building a meaning of the text. For example, in reading for literary experience, students may want to see how the author explores or uncovers experiences, or they may be looking for vicarious experience through the story's characters. On the other hand, the student's purpose in reading informational texts may be to learn about a topic (such as the Civil War or the oceans) or to accomplish a task (such as getting somewhere, completing a form, or building something).

The assessment asks students at all three grades to build, extend, and examine text meaning from four stances or orientations:

Initial Understanding—Students are asked to provide the overall or general meaning of the selection. This includes summaries, main points, or themes.

Developing Interpretation—Students are asked to extend the ideas in the text by making inferences and connections. This includes making connections between cause and effect, analyzing the motives of characters, and drawing conclusions.

Personal Response—Students are asked to make explicit connections between the ideas in the text and their own background knowledge and experiences. This includes comparing story characters with themselves or people they know, for example, or indicating whether they found a passage useful or interesting.

Critical Stance—Students are asked to consider how the author crafted a text. This includes identifying stylistic devices such as mood and tone.

These stances are not considered hierarchical or completely independent of each other. Rather, they provide a frame for generating questions and considering student performance at all levels. All students at all levels should be able to respond to reading selections from all of these orientations. What varies with students' developmental and achievement levels is the amount of prompting or support needed for response, the complexity of the texts to which they can respond, and the sophistication of their answers.

(continued)

Figure I-1 (continued)
Final Descriptions of 1992 Reading Achievement Levels

INTRODUCTION

The following achievement-level descriptions focus on the interaction of the reader, the text, and the context. They provide some specific examples of reading behaviors that should be familiar to most readers of this document. The specific examples are not inclusive; their purpose is to help clarify and differentiate what readers performing at each achievement level should be able to do. While a number of other reading achievement indicators exist at every level, space and efficiency preclude an exhaustive listing.

It should also be noted that the achievement levels are cumulative from basic to proficient to advanced. One level builds on the previous levels such that knowledge at the proficient level presumes mastery of the basic level, and knowledge at the advanced level presumes mastery at both the basic and proficient.

Grade 4–Basic

Fourth-grade students performing at the **basic level** *should demonstrate an understanding of the overall meaning of what they read. When reading texts appropriate for fourth graders, they should be able to make relatively obvious connections between the text and their own experiences*⁶.

For example, when reading **literary text**, they should be able to tell what the story is generally about—providing details to support their understanding—and be able to connect aspects of the stories to their own experiences.

When reading **informational text**, basic-level fourth graders should be able to tell what the selection is generally about or identify the purpose for reading it; provide details to support their understanding; and connect ideas from the text to their background knowledge and experiences.

Grade 4–Proficient

Fourth grade students performing at the **proficient level** *should be able to demonstrate an overall understanding of the text, providing inferential as well as literal information. When reading text appropriate to fourth grade, they should be able to extend the ideas in the text by making inferences, drawing conclusions, and making connections to their own experiences. The connection between the text and what the student infers should be clear.*

For example, when reading **literary text**, proficient-level fourth graders should be able to summarize the story, draw conclusions about the characters or plot, and recognize relationships such as cause and effect.

When reading **informational text**, proficient-level students should be able to summarize the information and identify the author's intent or purpose. They should be able to draw reasonable conclusions from the text, recognize relationships such as cause and effect or similarities and differences, and identify the meaning of the selection's key concepts.

(continued)

⁶ Based on the recommendations of the 1994 reading revisit study, the phrase “*and extend the ideas in the text by making simple inferences*” has been added here to the description of *Basic*.

Figure I-1 (continued)
Final Descriptions of 1992 Reading Achievement Levels

Grade 4–Advanced

Fourth-grade students performing at the **advanced level** *should be able to generalize about topics in the reading selection and demonstrate an awareness of how authors compose and use literary devices.* When reading text appropriate to fourth grade, *they should be able to judge texts critically and, in general, give thorough answers that indicate careful thought.*

For example, when reading **literary text**, advanced-level students should be able to make generalizations about the point of the story and extend its meaning by integrating personal experiences and other readings with the ideas suggested by the text. They should be able to identify literary devices such as figurative language.

When reading **informational text**, advanced-level fourth graders should be able to explain the author’s intent by using supporting material from the text. They should be able to make critical judgments of the form and content of the text and explain their judgments clearly.

Grade 8–Basic

Eighth-grade students performing at the **basic level** *should demonstrate a literal understanding of what they read and be able to make some interpretations.* When reading text appropriate to eighth grade, *they should be able to identify specific aspects of the text that reflect the overall meaning,⁷ recognize and relate interpretations and connections among ideas in the text to personal experience, and draw conclusions based on the text.*

For example, when reading **literary text**, basic-level eighth graders should be able to identify themes and make inferences and logical predictions about aspects such as plot and characters.

When reading **informative text**, they should be able to identify the main idea and the author’s purpose. They should make inferences and draw conclusions supported by information in the text. They should recognize the relationships among the facts, ideas, events, and concepts of the text (e.g., cause and effect and chronological order).

When reading **practical text**, they should be able to identify the main purpose and make predictions about the relatively obvious outcomes of procedures in the text.

(continued)

⁷ Based on the recommendations of the 1994 reading revisit study, the phrase “*extend the ideas in the text by making simple inferences,*” has been added here to the description of *Basic*.

Figure I-1 (continued)
Final Descriptions of 1992 Reading Achievement Levels

Grade 8–Proficient

Eighth-grade students performing at the **proficient level** *should be able to show an overall understanding of the text, including inferential as well as literal information. When reading text appropriate to eighth grade, they should extend the ideas in the text by making clear inferences from it, by drawing conclusions, and by making connections to their own experiences—including other reading experiences. Proficient eighth graders should be able to identify some of the devices authors use in composing text.*

For example, when reading **literary text**, students at the proficient level should be able to give details and examples to support themes that they identify. They should be able to use implied as well as explicit information in articulating themes; to interpret the actions, behaviors, and motives of characters; and to identify the use of literary devices such as personification and foreshadowing.

When reading **informative text**, they should be able to summarize the text using explicit and implied information and support conclusions with inferences based on the text.

When reading **practical text**, proficient-level students should be able to describe its purpose and support their views with examples and details. They should be able to judge the importance of certain steps and procedures.

Grade 8–Advanced

Eighth-grade students performing at the **advanced level** *should be able to describe the more abstract themes and ideas of the overall text. When reading text appropriate to eighth grade, they should be able to analyze both meaning and form and support their analyses explicitly with examples from the text; they should be able to extend text information by relating it to their experiences and to world events. At this level, student responses should be thorough, thoughtful, and extensive.*

For example, when reading **literary text**, advanced-level eighth graders should be able to make complex, abstract summaries and theme statements. They should be able to describe the interactions of various literary elements (i.e., setting, plot, characters, and theme); to explain how the use of literary devices affects both the meaning of the text and their response to the author’s style. They should be able critically to analyze and evaluate the composition of the text.

When reading **informative text**, they should be able to analyze the author’s purpose and point of view. They should be able to use cultural and historical background information to develop perspectives on the text and be able to apply text information to broad issues and world situations.

When reading **practical text**, advanced-level students should be able to synthesize information that will guide their performance, apply text information to new situations, and critique the usefulness of the form and content.

(continued)

Figure I-1 (continued)
Final Descriptions of 1992 Reading Achievement Levels

Grade 12–Basic

Twelfth-grade students performing at the **basic level** *should be able to demonstrate an overall understanding and make some interpretations of the text. When reading text appropriate to twelfth grade, they should be able to identify and relate aspects of the text to its overall meaning,⁸ recognize interpretations, make connections among and relate ideas in the text to their personal experiences, and draw conclusions. They should be able to identify elements of an author’s style.*

For example, when reading **literary text**, twelfth-grade students should be able to explain the theme, support their conclusions with information from the text, and make connections between aspects of the text and their own experiences.

When reading **informational text**, basic-level twelfth graders should be able to explain the main idea or purpose of a selection and use text information to support a conclusion or make a point. They should be able to make logical connections between the ideas in the text and their own background knowledge.

When reading **practical text**, they should be able to explain its purpose and the significance of specific details or steps.

Grade 12–Proficient

Twelfth-grade students performing at the **proficient level** *should be able to show an overall understanding of the text, which includes inferential as well as literal information. When reading text appropriate to twelfth grade, they should be able to extend the ideas of the text by making inferences, drawing conclusions, and making connections to their own personal experiences and other readings. Connections between inferences and the text should be clear, even when implicit. These students should be able to analyze the author’s use of literary devices.*

When reading **literary text**, proficient-level twelfth graders should be able to integrate their personal experiences with ideas in the text to draw and support conclusions. They should be able to explain the author’s use of literary devices such as irony or symbolism.

When reading **informative text**, they should be able to apply text information appropriately to specific situations and integrate their background information with ideas in the text to draw and support conclusions.

When reading **practical texts**, they should be able to apply information or directions appropriately. They should be able to use personal experiences to evaluate the usefulness of text information.

Grade 12–Advanced

Twelfth-grade students performing at the **advanced level** *should be able to describe more abstract themes and ideas in the overall text. When reading text appropriate to twelfth grade, they should be able to analyze both the meaning and the form of the text and explicitly support their analyses with specific examples from the text. They should be able to extend the information from the text by relating it to their experiences and to the world. Their responses should be thorough, thoughtful, and extensive.*

(continued)

⁸ Based on the recommendations of the 1994 reading revisit study, the phrase “*extend the ideas in the text by making simple inferences,*” has been added here to the description of *Basic*.

Figure I-1 (continued)
Final Descriptions of 1992 Reading Achievement Levels

For example, when reading **literary text**, advanced-level twelfth graders should be able to produce complex, abstract summaries and theme statements. They should be able to use cultural, historical, and personal information to develop and explain text perspectives and conclusions. They should be able to evaluate the text, applying knowledge gained from other texts.

When reading **informational text**, they should be able to analyze, synthesize, and evaluate points of view. They should be able to identify the relationship between the author's stance and elements of the text. They should be able to apply text information to new situations and to the process of forming new responses to problems or issues.

When reading **practical texts**, advanced-level twelfth graders should be able to make a critical evaluation of the usefulness of the text and apply directions from the text to new situations.

Figure I-2
Draft Descriptions of the Achievement Levels
Prepared by the Original Level-Setting Panel

Fourth-Grade Draft Descriptions

BASIC performance in reading should include:

- Determining what a text is about
- Identifying characterizations, settings, conflicts, or plots in a story
- Supporting one’s understanding of a text with appropriate details
- Explaining why one likes or dislikes a text
- Connecting material in a text to personal experiences
- Making predictions about situations beyond the confines of a text
- Demonstrating an ability to maintain a focus over the entirety of a longer text

PROFICIENT performance in reading should include:

- Summarizing a text
- Recognizing an author’s intent or purpose
- Making simple inferences based on information provided in a text
- Using information from a text to draw a basic conclusion
- Determining the meaning of key concepts in the text and connecting them to the main idea
- Recognizing the progression of ideas and the cause-and-effect relationships in a text
- Using the surrounding text to assign meaning to a word or phrase

ADVANCED performance in reading should include:

- Explaining an authors intent, using supporting material from the text
- Describing the similarities and differences in characters
- Demonstrating an awareness of the use of literary devices and figurative language
- Applying inferences drawn from a text to personal experiences
- Extending the meaning of a text by integrating experiences and information outside of the text
- Making and explaining a critical judgment of a text
- Demonstrating an ability to adapt reading purpose to genre and/or writing style

(continued)

Figure I-2 (continued)
Draft Descriptions of the Achievement Levels
Prepared by the Original Level-Setting Panel

Eighth-Grade Draft Descriptions

BASIC performance in reading should include:

- Identifying the main idea or purpose of a text using information both stated and implied
- Expressing an author’s purpose, viewpoint, and/or theme
- Using information from a text to draw and support conclusions
- Making inferences appropriate to the information provided in a text
- Recognizing the cause-and-effect relationships in a text
- Making logical connections from the material in a text to personal knowledge and experience

PROFICIENT performance in reading should include:

- Restating the main idea using supportive details and examples from a text
- Summarizing a text using information both stated and implied
- Making inferences from a text in order to draw valid conclusions
- Interpreting the actions, behaviors, and motives of characters
- Integrating personal knowledge and experience to enhance one’s understanding of a text
- Identifying an author’s use of literary devices

ADVANCED performance in reading should include:

- Describing how specific literary elements interact with each other
- Synthesizing the information in a text to obtain abstract meaning or to perform a task
- Finding new applications for information derived from a text
- Making personal and critical evaluations of a text
- Analyzing an author’s purpose, viewpoint, and/or theme
- Explaining an author’s use of literary devices

(continued)

Figure I-2 (continued)
Draft Descriptions of the Achievement Levels
Prepared by the Original Level-Setting Panel

Twelfth-Grade Draft Descriptions

BASIC performance in reading should include:

- Explaining the main idea of a text
- Describing the main purpose in reading a selection
- Recognizing the significance of details from a reading in order to support a conclusion or perform a task
- Applying the information gathered from reading to meet an objective or support a conclusion
- Explaining the basic elements of an author's literary devices

PROFICIENT performance in reading should include:

- Drawing conclusions from and making inferences about information from different texts and writing styles
- Integrating background information with newly acquired information to support conclusions
- Applying information from a text in an appropriate manner
- Bringing personal experience and accumulated knowledge into the process of critically evaluating a text
- Explaining an author's purpose in using complex literary devices

ADVANCED performance in reading should include:

- Providing innovative elaborations from textual information
- Analyzing and evaluating different points of view by means of comparison and contrast
- Identifying the relationships between an author's or narrator's stance and the various elements of the text
- Critically evaluating a text within a specific frame of reference
- Bringing the knowledge of other texts to the process of critical evaluation
- Using cultural or historical information provided in a text to develop perspectives on other situations
- Using cultural or historical information to develop perspectives on a text

Figure I-3
*Revised Draft Descriptions of the Achievement Levels
Recommended by the Follow-Up Validation Panel*

Revised Fourth-Grade Draft Descriptions

BASIC performance in reading should include:

- Determining what a story/informational text is about (i.e., topic, main idea)
- Determining the main purpose for reading a selection
- Identifying character(s), setting(s), conflict(s), or plot(s) in a story
- Supporting one's understanding of a story/informational text with appropriate details
- Explaining why one likes or dislikes what they have read [a reading]
- Connecting material from a story/informational text to personal experiences
- Making predictions about situations beyond the confines of the printed material
- Maintaining a focus over the entirety of a story/informational text

PROFICIENT performance in reading should include:

- Summarizing a story/informational text
- Recognizing an author's intent or purpose
- Making simple inferences based on information provided in a story/informational text
- Drawing a valid conclusion from a story/informational text
- Determining the meaning of key concepts in the story/informational text and connecting them to the main idea
- Recognizing relationships in a story/informational text (i.e., time order, cause/effect, compare/contrast)

ADVANCED performance in reading should include:

- Explaining an author's intent, using supporting material from the story/informational text
- Describing the similarities and difference in characters, settings, and plots
- Demonstrating an awareness of the use of literary devices, such as figurative language
- Applying inferences drawn from a story/informational text to personal experiences
- Extending the meaning of a story/informational text by integrating experiences and information outside of the text
- Making and explaining a critical judgment of a story/informational text
- Demonstrating an ability to adapt reading purpose to a variety of printed material and/or writing style

(continued)

Figure I-3 (continued)
Revised Draft Descriptions of the Achievement Levels
Recommended by the Follow-Up Validation Panel

Revised Eighth-Grade Draft Descriptions

BASIC performance in reading should include:

- Identifying the main idea, theme, or purpose of a text
- Describing the main purpose for reading a selection
- Expressing an author’s purpose and viewpoint
- Making inferences, predictions, and drawing conclusions that are supported by information in a text
- Recognizing the relationships among facts, ideas, events, and concepts within a text (i.e., cause and effect, chronological order, and characterization)
- Making logical connections between the text and personal knowledge
- Maintaining a focus over the entirety of a story/informational text

PROFICIENT performance in reading should include:

- Restating the main idea, theme, or purpose of a text using supporting details and examples
- Summarizing a text using both stated and implied information
- Interpreting the actions, behaviors, and motives of characters
- Using personal knowledge and experience to enhance one’s understanding of a text
- Identifying an author’s use of literary devices (i.e., personification, foreshadowing, and so forth)
- Using inferences from a text in order to draw valid conclusions

ADVANCED performance in reading should include:

- Describing how specific literary elements (i.e., setting, plot, characters, and theme) interact with each other
- Synthesizing the information in a text to obtain implied meaning or to perform a task
- Applying information derived from a text to new situations.
- Explaining an author’s use of literary devices (i.e., irony, personification, and foreshadowing)
- Responding personally and critically to a text
- Analyzing an author’s purpose and viewpoint
- Using cultural or historical information to develop perspectives on a text
- Using cultural or historical information provided in a text to develop perspectives on other situations

(continued)

Figure I-3 (continued)
Revised Draft Descriptions of the Achievement Levels
Recommended by the Follow-Up Validation Panel

Revised Twelfth-Grade Draft Descriptions

BASIC performance in reading should include:

- Explaining the main idea, theme, or purpose of a text
- Describing the main purpose for reading a selection
- Recognizing the significance of details from a reading in order to support a conclusion or perform a task
- Applying the information gathered from reading to meet an objective or support a conclusion
- Identifying and explaining the basic elements of an author's literary devices
- Making logical connections between a text and personal knowledge and experience
- Maintaining a focus over the entirety of a story/informational text

PROFICIENT performance in reading should include:

- Drawing conclusions and making inferences from different texts and writing styles
- Integrating background information with newly acquired information to support conclusions
- Applying information from a text in an appropriate manner
- Applying personal experience and accumulated knowledge to the process of critically evaluating a text
- Explaining an author's purpose in using complex literary devices (i.e., irony, symbolism)

ADVANCED performance in reading should include:

- All basic and proficient reading behaviors listed previously
- Prompted by information from a text, innovating in new situations and creating new answers to old situations
- Analyzing, synthesizing, and evaluating different points of view by means of comparison and contrast
- Identifying the relationships between an author's or narrator's stance and the various elements of the text
- Critically evaluating a text within a frame of reference
- Applying the knowledge of other texts to the process of critical evaluation
- Using cultural or historical information to develop perspectives on a text
- Using cultural or historical information provided in a text to develop perspectives on other situations

Figure I-4
Meeting Participants, NAEP Reading Achievement Level Setting
Original Meeting, St. Louis, Missouri, August 21–25, 1992

Paula Abrams City Hall Bedford, KY	Wilma Centers Wolfe County Middle School Campton, KY	Karen Fugita Oak Grove SD San Jose, CA
Freda Andrews Durham Public Schools Durham, NC	Eunice Coakley Greenville School Greenville, SC	Harlon Gaskill (CPA) Gaskill, Pharis & Pharis Dalhart, TX
David Awbrey Wichita Eagle Wichita, KS	Eugenia Constantinou Prince Georges County Schools Silver Spring, MD	Patricia Gerdes Waelder ISD Schulenburg, TX
Tim Barnes Ashdown Public Schools Ashdown, AR	Walt Cottingham Henderson City Schools Zirconia, NC	Mary Gonzalez Mesa Public Schools Mesa, AZ
Larry Barretto Maplewood Elementary School Coral Springs, FL	Cora Cummins Conway Public Schools Conway, AR	Anne Gregory Durham Public Schools Durham, NC
Linda Borsum Lakeview School District Battlecreek, MI	Gloria Darling Conway Public Schools Conway, AR	Kathleen Harkey Corporate Presentations Nashville, TN
Dorothy Botham Milwaukee Public Library Milwaukee, WI	Deborah Davidson Westhampton Beach UFSD Patchogue, NY	Catherine Hatala School District of Philadelphia Philadelphia, PA
Constance Boyd Owen J. Roberts SD King of Prussia, PA	Julia Dominique Department of Education USVI Sunnyisle, VI	Georgia Howard Volusia County Schools Holly Hill, FL
P. Richard Brackett Brackett & Assoc. Motivational Marketing Company Brentwood, TN	Dee Ellis Trimble Banner Newspaper Milton, KY	Joseph Howard Josiah Quincy School West Roxbury, MA
Anna Caballero Attorney Salinas, CA	Kathryn Flannery Indiana University Bloomington, IN	Roberta Johnson Cleveland Public Schools Cleveland, OH
Rhonda Cantrell Dunn Nashville Urban League Nashville, TN	Stanley Fraundorf Cuba City Public Schools Cuba City, WI	Marcia Jolicoeur Lisbon Falls School Lewiston, ME
Kathy Casseday WFSP Radio Station Kingwood, WV	Nina Frederick Marion County School System Hackleburg, AL	Anne Kraut Elementary Supervisor Princeton, WV

Figure I-4 (continued)

*Meeting Participants, NAEP Reading Achievement-Level Setting
Original Meeting, St. Louis, Missouri, August 21 - 25, 1992*

Roger Larsen Campbell County SD Gillette, WY	Meredith Powers Swansea School Providence, RI	Berton Wisner Columbus Public School Columbus, OH
Mary Ann Ledbetter East Baton Rouge Parish School Board Baton Rouge, LA	Beth Schieber Kingfisher Schools Okarche, OK	Jean Young Houston ISD Houston, TX
Leslie Leech Elkton School Elkton, SD	James Schindler Jordan SD Salt Lake City, UT	Sue Zak Cleveland Board of Education Garfield Heights, OH
Belva Leffel Whittier Christian Jr. High Norwalk, CA	Christine Sentz North Milwaukee Branch Library Milwaukee, WI	Judith Zinsser Houston ISD Houston, TX
Elizabeth Litchfield Westwood School District Emerson, NJ	Nona Smith NAACP New York, NY	
Judith Lusk Norfield School District Rockbury, VT	Lillaine Speese Oakdale Elementary School Oroville, CA	
Harriett McAllaster Volusia County Schools DeLand, FL	Carolyn Sullivan Planters & Merchants Bank Gillett, AR	
Jean McManis Local/State Education Volunteer State College, PA	Clifton Whetten Retired Construction Sprvsr. Elfrida, AZ	
Donnie McQuinn Wolfe County Board of Education Pine Ridge, KY	Robert Williams Macomb Intermediate SD Clinton Township, MI	
Raymond Morgan Old Dominion University Virginia Beach, VA	Carolyn Sue Wilson Greenville, SC	
Patricia Oliverez Salinas Public Library Salinas, CA		
Mary Orear Camden-Rockport HS & MS Rockport, ME		

Figure I-5

*Meeting Participants, NAEP Reading Achievement Level Setting
Follow-Up Validation Meeting, San Diego, California, October 9–11, 1992*

Larry Barretto
Maplewood Elementary School
Coral Springs, FL

Martha Carter
Milwaukee Public Schools
Milwaukee, WI

Eunice Coakley
Greenville School
Greenville, SC

Clyde Colwell
Norfolk Public School
Norfolk, VA

Mark Conley
Michigan State University
Holt, MI

Eugenia Constantinou
Prince George's County School
Silver Spring, MD

Debra Davidson
Westhampton Beach UFSD
Patchogue, NY

Peggy Dutcher
Michigan Education Assessment
Program
Lansing, MI

Anne Gregory
Durham Public Schools
Durham, NC

Gene Jongsma
IRA Subcommittee Member
San Antonio, TX

Roger Larsen
Campbell County SD
Gillett, WY

Elizabeth Litchfield
Westwood School District
Emmerson, NJ

Nancy Livingston
Brigham Young University
Salt Lake City, UT

Susan McIntyre
University Wisconsin-Eau Claire
Eau Claire, WI

Mary Orear
Camden–Rockport HS & MS
Rockport, ME

Shelia Potter
Michigan Department of Education
Lansing, MI

Meredith Powers
Swansea School
Providence, RI

Jo Prather
Mississippi Department of Education
Jackson, MS

Beth Schieber
Kingfisher Schools
Okarche, OK

Figure I-6
*Meeting Participants, NAEP Reading Revisit
 Validation Meeting, St. Louis, Missouri, October 14–16, 1994*

Jody Alexander Madison No. 1 Phoenix, AZ	Brenda Creel Jessup Elementary School Cheyenne, WY	Susan Hodgins Moscow Public Schools Moscow, ID
Evelyn Alford East Baton Rouge Public Schools Baton Rouge, LA	Pam Diamond Hellgate Middle School Missoula, MT	Beverly Hoffmaster Berkeley Heights Elem School Martinsburg, WV
Winfrey Bates Mannsville Elementary School Mannsville, KY	Caroline Downs Worland Middle School Worland, WY	Roberta Horton Custer County High School Miles City, MT
Joyce Boone John Strange Elementary School Indianapolis, IN	Esther Dunnington Grandview High School Grandview, MO	Lory Johnson Iowa Department of Education Des Moines, IA
Linda Brooks Alcorn County Public Schools Corinth, MS	Sandra Forsythe Green Valley High School Henderson, NV	Ruth Johnson Holmes High School Covington, KY
Katie Burnham Pa Wau Lu Middle School Gardnerville, NV	David Fredette Westborough High School Westborough, MA	Theresa Lowe Rancho Viejo School Yuma, AZ
Martha Carter Milwaukee Public Schools Milwaukee, WI	Cynthia Freeman Maryville High School Maryville, TN	Ruby Mayes S.P. Waltrip High School Houston, TX
Carol Case Mirabeau B. Lamar High School Houston, TX	Rita Gallagher Roswell, NM	Robert McKean Havre Public Schools Havre, MT
Molly Chun Applegate Elementary School Portland, OR	Lorraine Gerhart Elmbrook Middle School Elm Grove, WI	Pamela McNair Lemon G. Hine Jr. High School Washington, DC
Roseine Church Cheyenne, WY	Bill Hammond GA Department of Education Atlanta, GA	Daniel McQuagge Delta State University Cleveland, MS
Connie Clayton Franklin High School Franklin, WV	Sally Hellman Las Vegas, NV	Cheryl Miller Buchanan Elementary School Baton Rouge, LA
David Colburn Flathead High School Kalispell, MT	Grace Herr West Linn High School West Linn, OR	
	Sarah Herz Coleytown Middle School Westport, CT	

Figure I-6 (continued)
Meeting Participants, NAEP Reading Revisit
Validation Meeting, St. Louis, Missouri, October 14 - 16, 1994

Donna Miller
Chinook High School
Chinook, MT

Lynn Minderman
Honeoye Falls-Lima Public
Schools
Honeoye Falls, NY

John Morrissey
Huntley Project
Elem School
Worden, MT

Pamela Perryman
Selah Middle School
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Kathleen Sanders
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Helen Schotanus
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Terrence Smith
Verona School
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Faith Stevens
Haslett Public Schools
Haslett, MI

Richard Telfer
Univ. of Wisconsin-Whitewater
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Cara Terry
Lakewood High School
St. Petersburg, FL

James Thompson
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Hartford, CT

Patsy Turner
Great River Co-operative
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Maria Valeri-Gold
Georgia State University
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Florence Wakuya
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Honolulu, HI

Barbara Watson
Agricola Elementary School
Lucedale, MS

Janet Williams
Bluewell Elementary School
Bluefield, WV

Sarah Williams
Maryville Middle School
Maryville, TN

Philip Yeaton
Concord, NH

Katie Young
Louisiana Department of Ed
Baton Rouge, L

Appendix J

SETTING THE ACHIEVEMENT LEVELS FOR THE 1998 NAEP CIVICS AND WRITING ASSESSMENTS

Mary Lyn Bourque
National Assessment Governing Board

J.1 INTRODUCTION

The 1988 NAEP legislation (Hawkins-Stafford Education Improvement Act Amendments of 1988) created an independent board, the National Assessment Governing Board (NAGB), responsible for setting policy for the NAEP program. The 1994 NAEP reauthorization (Improving America's Schools Act of 1994) continued many of the board's statutory responsibilities, including "developing appropriate student performance standards for each age and grade in each subject area to be tested under the National Assessment." Consistent with this directive, and striving to achieve one of the primary mandates of the statute "to improve the form and use of NAEP results," the board has been developing student performance standards (called achievement levels by NAGB) on the national assessment since 1990.

From 1984 to 1996, NAEP reported the performance of students in the nation and for specific subpopulations on a 0-to-500 score scale. This scale was a cross-grade scale, that is, a single performance scale was developed for grades 4, 8, and 12, so that comparisons could be made between and among the three grade cohorts. In 1996, NAGB policy required that a unique scale be developed for each grade level. The new metric chosen ranged from 0-to-300 to minimize confusion between the earlier cross-grade scale and the new within-grade scale. The history and development of the scales in civics and writing are described in Chapter 12 of this report.

Setting achievement levels is a method for setting standards on the NAEP assessment that identify what students should know and be able to do at various points along the score scale. The policy definitions and the final content descriptions of the achievement levels were presented to panelists along with the assessment framework and the full NAEP item pool in order to estimate the cut scores for the levels. Panelists were asked to internalize the achievement-level descriptions and to become familiar with the NAEP item pool for the particular NAEP assessment with respect to the content and skills assessed. In addition to recommending cut scores, panelists were also asked to select illustrative exercises associated with each level, selecting from the released exercises in the NAEP item pool those sample items and student responses (in the case of constructed-response exercises) that best exemplified the full range of performance of the intervals between levels. The emphasis in operationalizing the definitions and in identifying and selecting exemplar items and papers was to represent the full range of performance from the lower level to the next higher level. The details of the implementation procedures are outlined in the remainder of this appendix.

J.2 PREPARING THE FINAL DESCRIPTIONS

The 1998 levels setting process was different in some significant ways from earlier level-setting processes that had been used in other NAEP subject areas. The first of these differences occurred at the very beginning of the process. In the past, panelists were given the preliminary descriptions of the levels developed initially by the framework consensus groups and asked to craft recommended descriptions during the process. The descriptions continued to be refined throughout the level-setting process, and usually were validated by a supplementary group of judges subsequent to the level-setting meetings.

In 1998, the finalized achievement-level descriptions (ALDs) were *givens* in the process, much like the framework and the item pool are *givens*. Prior to the level-setting meetings, focus groups in each NAEP region were conducted to evaluate the preliminary ALDs for each subject (civics and writing). The focus group recommendations were reviewed by expert content panels and appropriate modifications were made. The revised ALDs were then reviewed and evaluated by the framework consensus panels and all focus group participants. These proposed final ALDs were then reviewed and modified by the NAGB Achievement Levels Committee and approved for use—without change—in the remainder of the process.

J.3 1998 FIELD TRIALS IN CIVICS AND WRITING

A second difference between the 1998 process and earlier processes was the field trials. In the past, the pilot studies combined both the pilot work (to test out the operational procedures) and the initial research work (to try out various methods). The 1998 process separated these two tasks by having two stages: first stage, field trials; and second stage, pilot studies.

In 1998, two field trials in each subject were conducted to identify rating methods and procedures. Prior to the field trials, a number of computer simulations were completed to determine the feasibility of the proposed new methods. Field trial 1 was designed to test a new method (item score string estimation, or ISSE) in comparison to the “current” method. For civics, the current method was a combination of modified-Angoff method for multiple-choice items and the mean estimation method for constructed-response items. For writing, the current method was mean estimation, since the NAEP writing assessment is a direct writing assessment and consists entirely of constructed response.

Field trial 2 was originally designed to compare an item-mapping procedure with the new method from field trial 1 (ISSE) and to test the provision of consequences data to panelists at various points in the process. However, analysis of the field trial 1 data led to the conclusion the ISSE method was biased, and further exploration with it was not recommended by the Technical Advisory Committee on Standard Setting (TACSS), the external group of advisors to ACT. Therefore, field trial 2 in civics compared an alternative, the Reckase method, with the mean estimation method combined with item maps in civics, and the Reckase method with the booklet classification method in writing. Full details of the field trials in each subject can be found in the ACT reports (ACT, 1998; 1999c). The recommendations from the two field trials resulted in using the modified Angoff and mean estimation methods with Reckase charts in civics, and the mean estimation method with Reckase charts in writing.

J.4 PREPARATION FOR CIVICS AND WRITING LEVEL SETTING MEETINGS

It is important for the planning of any standard-setting effort to know how various process elements interact with each other. For example, panelists interact with premeeting materials, meeting materials (i.e., the assessment items, rating forms, rater feedback, and so forth), each other, and the project staff. All of these elements combine to promote or degrade what has been called intrajudge consistency and interjudge consensus (Friedman & Ho, 1990).

Previous research has conceptualized the effects of two major kinds of interaction: (1) people interacting with text (Smith & Smith, 1988), and (2) people interacting with each other (Curry, 1987; Fitzpatrick, 1989). To assess the effects of textual and social interaction and adjust the standard-setting procedures accordingly, a pilot study in each content area was conducted in preparation for the 1998 level setting.

J.5 1998 PILOT STUDIES IN CIVICS AND WRITING

As a result of the earlier field trials, the pilot studies were more focused, concentrating on the methodologies that would be used in the operational level setting, and adding those elements that were thought to be positive enhancements to the process. In civics, the pilot studies implemented an item-by-item rating method (the modified Angoff) for multiple-choice items, and the mean estimation method for the constructed-response items. In writing, the mean estimation method was used exclusively. However, there were two enhancements not used previously that were incorporated into the feedback loop for both civics and writing.

The first of these, Reckase charts, were provided to the panelists after Rounds 1 and 2. Figure J-1 displays an enlargement of a portion of a Reckase chart. The chart displays a matrix of information about the items on the assessment where the horizontal rows represent the probability of a correct response (for multiple-choice items) or the expected mean score (for constructed-response items) at a specific point on the score scale, for all the items in a particular block (or, in the case of writing, for the prompts in the exercise pool); and the vertical columns represent the same information (probability of a correct response or expected mean score) across the score scale range for a single item or exercise. The Reckase charts are an aggregated and tabularized version of the item characteristics curves (ICCs) for a block of items or a portion of the exercise pool.

The Reckase charts were provided to panelists after the first round so that they could “plot” their grade-level and individual cut scores on the chart to compare their individual data with the group’s data. If panelists plot their own item ratings on the chart and they are very consistent in their ratings, they should see very few peaks and valleys in their plot. A flat line on the chart indicates that panelists were able to judge the items consistently¹ for their item difficulty and discrimination. An erratic line with many peaks and valleys would indicate that panelists were unable to judge item difficulty and discrimination consistently from item to item in the block, or across the pool of exercises. Further, panelists could look at the distance between their individual line on the chart and that of the grade group. The wider the gap, the more deviant the individual is from the mean of the group. Panelists were given updated charts again after Round 2 for additional feedback (according to the new cut scores set in Round 2). Figure J-2 displays a completed portion of a Reckase chart for one of the civics blocks. This “ideal” panelist is somewhat consistent at the *Proficient* level, but much less so at the *Basic* level. The charts also allowed panelists to “see” their extreme ratings for any particular item. For example, those items that were rated particularly low (e.g., at or below the guessing parameter) were “off the chart”; while those at the high end (e.g., at or above a selected theta value) were also “off the chart.” This gave panelists their first indication that they needed to reconsider the item to understand what was causing them to have such extreme ratings.

¹ Consistency in this case refers to the panelists’ judgment about the difficulty and discrimination of the item with respect to the achievement-level descriptions and its consistency with the model-based estimates of item difficulty and discrimination. It is important to note that model-based estimates take into account other information that is not generally known to the panelists.

Figure J-1
Sample Reckase Chart Portion

ACT NAEP- Like Score	Civics Items for Block Y1X1										
	1	2	3	4	5	6	7	8	9	10	11
273	99	99	99	3.0	3.0	100	3.0	99	99	4.0	99
	↑					↑					
185	98	96	98	2.9	2.7	99	2.5	94	69	3.0	99
183	98	95	98	2.9	2.7	99	2.4	93	66	2.9	99
181	97	95	97	2.8	2.6	99	2.4	91	63	2.8	99
179	97	94	96	2.8	2.6	99	2.3	89	61	2.7	98
177	96	93	95	2.8	2.5	99	2.2	87	58	2.6	98
175	96	92	93	2.8	2.5	89	2.2	84	55	2.5	98
173	95	91	91	2.7	2.4	97	2.1	81	52	2.4	98
171	94	89	89	2.7	2.4	94	2.1	78	49	2.3	97
169	92	88	85	2.7	2.3	90	2.0	74	47	2.2	97
167	91	86	81	2.5	2.3	83	1.9	70	44	2.1	97
165	89	84	76	2.5	2.2	73	1.9	65	42	2.0	96
163	87	82	70	2.5	2.2	61	1.8	61	40	1.9	95
161	85	80	64	2.5	2.1	50	1.7	56	38	1.8	95
159	82	77	58	2.4	2.0	40	1.7	52	36	1.7	94
157	79	75	52	2.4	2.0	33	1.6	48	34	1.6	93
155	76	72	46	2.3	1.9	29	1.6	45	33	1.6	92
153	72	69	41	2.3	1.8	27	1.5	42	31	1.5	90
151	68	66	37	2.2	1.8	26	1.5	39	30	1.5	89
149	65	63	34	2.1	1.7	25	1.4	37	29	1.4	87
147	61	60	31	2.1	1.7	25	1.4	35	28	1.4	85
↓						↓					
39	27	26	23	1.0	1.0	24	1.0	26	20	1.0	34

The second enhancement to the process was the introduction of consequences data during the rating process. The field trial data supported the idea of providing panelists with consequences data (that is, the percentage of students at or above the levels) after Round 3 to estimate final cut points for the final recommendation to the NAGB. This change was introduced in the pilots partly in response to the National Academy of Sciences' evaluation and partly due to the recent effort in other standard-setting venues to provide such information to judges (National Academy of Sciences, 1998). This change resulted in four estimates of cut scores for the levels, three using item-by-item approaches, and the final round using a more holistic approach and consequences data. In the final estimate, panelists were asked to judge the reasonableness of their standards, taking into account the percentage of students at or above the levels, and to decide whether or not some final adjustment was necessary.

Figure J-2
Sample Reckase Chart – Complete

ACT NAEP- Like Score	Civics Items for Block Y1X1										
	1	2	3	4	5	6	7	8	9	10	11
273	99	99	99	3.0	3.0	100	3.0	99	99	4.0	99
225	99	99	99	3.0	3.0	99	2.9	99	97	3.9	99
223	99	99	99	3.0	3.0	99	2.9	99	96	3.8	99
221	99	99	99	3.0	3.0	99	2.9	99	96	3.8	99
219	99	99	99	3.0	2.9	99	2.9	99	95	{3.8}	99
217	99	99	99	3.0	2.9	99	2.9	99	95	3.8	99
215	99	99	99	3.0	2.9	99	2.9	99	94	3.8	99
213	99	99	99	3.0	2.9	99	2.9	99	93	3.7	99
211	99	99	99	3.0	{2.9}	99	2.9	99	93	3.7	99
209	99	99	99	3.0	{2.9}	99	2.9	99	92	3.7	99
207	99	99	99	3.0	2.9	99	2.8	99	{91}	3.6	99
205	99	99	99	3.0	2.9	99	{2.8}	99	{89}	3.6	99
203	99	99	99	3.0	2.9	99	{2.8}	99	88	3.5	99
201	99	99	99	3.0	2.9	99	2.8	99	86	3.5	99
199	99	98	99	2.9	2.8	99	2.7	98	85	3.4	99
197	99	98	99	2.9	2.8	99	2.7	98	84	3.4	99
195	99	98	99	2.9	2.8	99	2.7	98	81	3.3	99
193	99	98	99	2.9	2.8	99	2.6	97	79	3.3	99
191	99	97	99	2.9	2.8	99	2.6	97	77	3.2	99
189	99	97	99	2.9	2.7	99	2.6	96	74	{3.1}	99
187	98	96	99	2.9	2.7	99	{2.5}	95	72	3.0	99
185	98	96	98	2.9	2.7	99	{2.5}	94	69	3.0	99
183	98	95	98	2.9	2.7	99	2.4	93	66	2.9	99
181	97	95	97	2.8	{2.6}	99	2.4	91	63	2.8	99
179	97	94	96	{2.8}	{2.6}	99	2.3	{89}	61	2.7	98
177	96	93	95	{2.8}	2.5	99	2.2	87	58	2.6	98
175	96	92	93	2.8	2.5	{89}	2.2	84	{55}	2.5	98
173	95	91	{91}	2.7	2.4	97	{2.1}	81	{52}	2.4	98
171	94	89	89	2.7	2.4	94	{2.1}	78	49	2.3	97
169	92	88	85	2.7	2.3	{90}	2.0	74	47	2.2	97
167	91	86	81	{2.5}	2.3	{88}	1.9	70	44	(2.1)	97
165	89	84	76	{2.5}	(2.2)	73	1.9	{65}	42	2.0	{96}
163	87	{82}	70	2.5	(2.2)	61	1.8	{61}	40	1.9	95
161	{85}	80	64	2.5	2.1	50	1.7	56	38	1.8	95
159	82	77	{58}	2.4	2.0	(40)	1.7	52	36	1.7	94
157	79	75	{52}	2.4	2.0	33	1.6	(48)	34	1.6	93
155	76	72	46	2.3	1.9	29	1.6	45	33	1.6	{92}
153	72	69	41	2.3	1.8	27	1.5	42	31	1.5	{90}
151	68	{66}	37	2.2	1.8	26	1.5	39	30	1.5	89
149	65	63	34	2.1	1.7	25	1.4	37	(29)	1.4	87
147	{61}	60	(31)	2.1	1.7	25	1.4	35	28	1.4	85
145	57	57	(29)	(2.0)	1.6	25	1.4	33	27	1.3	83
143	53	54	27	1.9	1.6	24	1.3	32	26	1.3	81
141	50	51	26	1.9	1.5	24	1.3	31	25	1.2	78
139	47	48	25	1.8	1.5	24	1.3	30	25	1.2	75
137	44	46	25	1.7	1.4	24	1.2	29	24	1.2	73
135	41	44	24	1.7	1.4	24	1.2	28	24	1.2	(70)
133	39	42	24	1.6	1.3	24	1.2	28	23	1.1	67
131	37	40	24	1.6	1.3	24	1.2	28	23	1.1	64
129	(35)	38	23	1.5	1.3	24	1.1	27	22	1.1	61
127	34	36	23	1.5	1.3	24	1.1	27	22	1.1	58
125	33	35	23	1.4	1.2	24	1.1	27	22	1.1	55
123	32	34	23	1.4	1.2	24	1.1	27	22	1.1	53
121	31	33	23	1.3	1.2	24	1.1	27	21	1.1	50
119	30	32	23	1.3	1.2	24	1.1	27	21	1.1	48
117	30	31	23	1.2	1.2	24	1.1	27	21	1.1	46
115	29	30	23	1.1	1.1	24	1.1	27	21	1.0	45
113	29	29	23	1.1	1.1	24	1.1	27	21	1.0	43
111	29	29	23	1.2	1.1	24	1.0	27	21	1.0	42
109	28	28	23	1.2	1.1	24	1.0	27	21	1.0	41
107	28	(28)	23	1.1	1.1	24	1.0	27	21	1.0	40
105	28	28	23	1.1	1.1	24	1.0	26	21	1.0	39
103	28	27	23	1.1	1.1	24	1.0	26	21	1.0	38
39	27	26	23	1.0	1.0	24	1.0	26	20	1.0	34

J.6 RESULTS OF THE 1998 PILOT STUDIES

Fifty-three panelists representing the four NAEP regions were selected from the 329 nominees and invited to participate in the civics pilot. Sixty panelists selected in the same way were invited to participate in the writing pilot from the 419 nominated. The panelists represented teachers at grades 4, 8, and 12, nonteacher educators, and members of the noneducator (general public) community. The group was balanced by gender, race/ethnicity, NAEP regions, community type (i.e., low SES or not low SES), district size, and school type (i.e., public or nonpublic).

Tables J-1 and J-2 display the results of the pilot study cut scores and the standard deviations for civics and writing in grades 4, 8, and 12. The results are on the ACT NAEP-like scale score, having a effective range from 0-to-300, with a mean of 155 and a standard deviation of 14. Further details of the pilot studies can be found in the contractor's final reports (ACT 1999a, 1999e). It is worthy to note that unlike other standard-setting studies, the civics pilot cut scores for *all grades and all levels increased* from round to round. Additionally, cut scores for *dichotomous and polytomous items became closer* from round to round.

Table J-1
Pilot Study Cut Scores (Standard Deviations) on the 1998 Civics NAEP

Grade	Achievement Level	Round 1	Round 2	Round 3	Final
4	Basic	144.7 (15.9)	146.0 (8.3)	149.3 (5.2)	148.9 (3.6)
	Proficient	161.5 (6.9)	162.9 (5.1)	165.0 (3.9)	164.1 (3.7)
	Advanced	174.2 (7.6)	176.0 (6.5)	178.8 (5.5)	176.2 (5.1)
8	Basic	152.2 (9.5)	153.3 (6.8)	154.2 (5.7)	154.1 (5.5)
	Proficient	165.5 (5.2)	166.1 (5.1)	167.3 (4.2)	167.1 (4.1)
	Advanced	176.9 (5.9)	177.6 (5.8)	179.2 (4.7)	179.6 (4.6)
12	Basic	147.6 (6.0)	148.4 (3.7)	149.0 (3.3)	149.3 (3.2)
	Proficient	163.0 (3.6)	164.1 (2.7)	164.5 (2.4)	164.6 (2.4)
	Advanced	173.8 (5.6)	175.9 (5.1)	176.7 (4.8)	177.5 (4.8)

Table J-2
Pilot Study Cut Scores (Standard Deviations) on the 1998 Writing NAEP

Grade	Achievement Level	Round 1	Round 2	Round 3	Final
4	Basic	141.6 (5.2)	144.5 (4.0)	145.0 (3.3)	145.3 (2.6)
	Proficient	165.1 (9.2)	167.5 (4.0)	168.0 (3.9)	167.1 (3.0)
	Advanced	186.7 (8.0)	189.3 (3.5)	189.1 (4.2)	186.6 (3.1)
8	Basic	140.2(10.1)	145.6 (9.9)	149.8 (7.5)	151.2 (5.0)
	Proficient	165.0 (8.4)	171.0 (5.9)	172.3 (5.2)	170.9 (4.3)
	Advanced	186.1 (4.7)	189.5 (6.5)	190.7 (5.2)	188.6 (4.9)
12	Basic	135.9 (4.6)	137.0 (3.5)	137.5 (2.7)	138.3 (2.1)
	Proficient	156.1 (5.5)	159.1 (3.5)	157.9 (5.2)	158.9 (2.3)
	Advanced	179.9 (8.4)	182.2 (4.3)	182.8 (4.0)	181.7 (3.7)

J.7 1998 LEVEL-SETTING PANELS

Eighty-eight panelists representing the four NAEP regions were selected from the 422 nominees and invited to participate in the writing level-setting process. In civics, 87 panelists participated, selected from a nominee pool of 329 persons. Both panels represented teachers at grades 4, 8, and 12, nonteacher educators, and members of the noneducator (general public) community. The group was balanced by gender, race/ethnicity, NAEP regions of the country, community type (i.e., low SES or not low SES), district size, and school type (i.e., public or nonpublic).

J.8 1998 PROCESS FOR DEVELOPING THE ACHIEVEMENT LEVELS

The 1998 pilot studies were successful as dress rehearsals for the operational standard-setting meetings. However, some adjustments that were made for the operational standard-setting meetings as a result of the pilot studies were not trivial. First, the consequences data provided during the pilots only after Round 3 were provided on two occasions in the operational meetings. Grade-level consequences data were provided after Round 2, and individual consequences data were provided after Round 3. Grade-level consequences data were provided in the form of the percentages of students at or above the cut scores, where the cut scores were based on the mean of all panelists within a grade level group. Individual consequences data were unique to each panelist and were provided in the form of the percentages of students at or above the panelists' individual cut scores. The estimates of the cut scores made in the final Round 4 (with the availability of consequences data) would become the recommendations made to the board.

Panelists selected for each subject area were convened on separate occasions for a five-day level-setting process. Virtually the same agenda was followed for both subjects. In the opening sessions, panelists were provided "advance organizers" to help them see the complete picture of what they would be doing for the remaining days. An overview, via a computerized presentation, demonstrated each step in the process, the reasons for each step, and the interconnections between them. Each panelist was given a "briefing booklet" that described each task to be performed during each session, purpose of the task, and how to perform the task.

During the first two days, panelists were given a brief overview of NAEP and NAGB, a presentation on the policy definitions of the achievement levels, a review of the NAEP assessment frameworks, and a summary of the factors that influence item difficulty. The purpose of the presentations was to focus the panelists' attention on the assessment framework and to emphasize the fact that panelists' work was directly related to the NAEP assessment, not to the subject-matter domain as a whole. In addition, all panelists completed and self-scored an appropriate grade-level form of the NAEP assessment. The purpose of this exercise was to familiarize panelists with the test content and scoring protocols—as well as time constraints—before beginning the formal training for the level-setting activities.

The policy definitions are as follows:

Basic	This level represents partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
Proficient	This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
Advanced	This higher level signifies superior performance.

Panelists received training in the frameworks and the achievement-level descriptions through a series of exercises designed to provide them experience in working with the descriptions as operationalized during framework development and finalized during the planning phases of the project. These descriptions reflect what students *should know and be able to do* at each level. In addition, panelists were expected to become familiar with the various exercise formats, scoring guides, and in the case of polytomous exercises, the scoring rubrics. They were also given the opportunity to review student responses to selected constructed-response exercises so that they could begin to crystallize their conception of borderline performance for each level. These were important as prior activities to the item rating process. Specific training in each task was provided in a general session to ensure standardization in instructions. Grade-level facilitators reinforced the large-group training sessions and answered questions for panelists in grade-level groups. Tasks were then completed as designed. This sequence was followed for all tasks in the five-day session.

Following training in the modified Angoff method for dichotomously scored items and the mean estimation method for polytomously-scored items, the judges began the three-round rating process. In Round 1, and all subsequent rounds, panelists rated about one-half the total number of exercises in the grade-level pool. When each round was completed, panelists' ratings were key-entered and analyzed to produce feedback information during the remaining rounds of ratings. After each round, participants were given item difficulty data for all items in their rating pool, interjudge consistency information, Reckase charts, and examples of student booklets at or near their estimated cut scores. These types of data provided panelists with a reality check against which to compare their ratings. They could then adjust their ratings in subsequent rounds if they thought an adjustment was necessary.

For the multiple-choice and short constructed-response items that were dichotomously scored, the judges each rated half of the items in the NAEP pool in terms of the expected probability that a student at a borderline achievement level would answer the item correctly, based on the judges' operationalization of the policy definitions and the factors that influence item difficulty. To assist the judges in generating consistently scaled ratings, the rating process was repeated twice, with feedback. Information on consistency among different judges and on the difficulty of each item was provided after both rounds, as well as information on the consistency of each judge's set of ratings with grade-level estimates. The third round of ratings permitted the judges to discuss their ratings among themselves to resolve problematic ratings. The mean judges' final rating, aggregated across all items, yielded the threshold values for these items in the percent correct metric. These cut scores were then mapped onto the NAEP scale (which is defined and scored using item response theory, rather than percent correct).

For extended constructed-response items (e.g., in writing), judges were asked to estimate the mean score on the rating score scale for the borderline performance at each achievement level. The panelists' overall mean was mapped onto the NAEP scale in a manner similar to that used for the items scored dichotomously.

In civics, the final cut score for each achievement level was a weighted average of the cut score for the multiple-choice and short constructed-response items and the cut score for the extended constructed-response items, with the weights being proportional to the information supplied by the two classes of items.

Following Rounds 2 and 3, panelists were given "consequences data"; that is, panelists were given close approximations of the percentages of students who would score at or above each achievement level based on the cut scores that had been set during the earlier round. They were asked to consider these data as they completed Round 3 and the final round.

Tables J-3 and J-4 display the cut scores for each subject area on the ACT NAEP-like scale, as well as the "percent correct data" across the grade-level item pool.

Table J-3
*Civics Achievement-Level Cut Scores and Standard Deviations,
 by Rounds and Percent Correct Data*

Grade 4	Basic		Proficient		Advanced	
	Cut Score	Standard Deviation	Cut Score	Standard Deviation	Cut Score	Standard Deviation
Round 1	147.4	10.1	163.8	4.9	175.5	5.9
Round 2	148.6	5.7	164.1	3.5	177.0	4.4
Round 3	149.7	5.4	164.6	3.4	177.8	4.5
Final	150.2	4.9	164.7	3.2	177.8	4.0
% Correct	47.8%		65.8%		81.7%	
Grade 8						
Round 1	148.1	9.6	165.2	3.5	177.1	4.4
Round 2	149.3	6.0	165.2	3.0	177.1	3.8
Round 3	149.7	5.6	165.4	2.9	177.1	3.8
Final	149.2	5.3	165.4	2.8	177.9	3.0
% Correct	43.6%		64.6%		82.8%	
Grade 12						
Round 1	150.6	7.1	163.6	4.0	174.2	5.8
Round 2	150.4	5.2	163.9	3.6	174.8	3.6
Round 3	150.9	5.1	164.1	3.6	175.2	3.6
Final	151.2	3.9	164.1	3.0	175.2	3.4
% Correct	48.1%		67.2%		84.3%	

Note: Percent correct data are estimates of the percentage of possible points required for a score at the lower borderline of each achievement level. Read: "Students would have to get at least 84.3 percent of the possible points on the items to score at the advanced level in grade 12."

J.9 MAPPING THE LEVELS ONTO THE NAEP SCALE

The process of mapping panelists' ratings to the NAEP scales used item response theory (IRT). IRT provided statistically sophisticated methods for determining the expected performance of examinees on particular test items in terms of an appropriate measurement scale. The same measurement scale simultaneously described the characteristics of the test items and the performance of the examinees. Once the item characteristics were set, it was possible to determine precisely how examinees were likely to perform on the test items at different points of the measurement scale.

The panelists' ratings of the NAEP test items were likewise linked, by definition, to the expected performance of examinees at the theoretical achievement-level cut points. It was therefore feasible to use the IRT item characteristics to calculate the values on the measurement scale corresponding to each achievement level. This was done by averaging the item ratings over panelists for each achievement level and then simply using the item characteristics to find the corresponding achievement-level cut points on the IRT measurement scale. This process was repeated for each of the NAEP civics and writing scales within each grade (4, 8, and 12).

In the final stage of the mapping process, the achievement-level cut points on the IRT measurement scale were combined over content areas and rescaled to the NAEP score scale. Weighted averages of the achievement-level cut points were computed. The weighting constants accounted for the measurement precision of the test items evaluated by the panelists, the proportion of items belonging to

each NAEP content area, and the linear NAEP scale transformations. These weighted averages produced the final cut points for the basic, proficient, and advanced achievement levels within each grade.

Table J-4
*Writing Achievement-Level Cut Scores and Standard Deviations,
by Rounds and Percent Correct Data*

Grade 4	Basic		Proficient		Advanced	
	Cut Score	Standard Deviation	Cut Score	Standard Deviation	Cut Score	Standard Deviation
Round 1	137.6	5.4	163.1	5.2	185.6	5.4
Round 2	138.7	4.2	164.9	3.9	186.8	4.6
Round 3	139.2	3.8	164.9	3.4	185.6	4.4
Final	139.5	3.4	164.9	3.2	184.8	4.0
% Correct	45.3%		67.6%		86.2%	
Grade 8						
Round 1	138.5	6.5	163.6	5.7	185.3	4.2
Round 2	139.7	3.6	164.0	2.5	185.2	2.3
Round 3	139.7	3.2	163.8	2.2	184.9	2.2
Final	139.7	3.0	163.7	2.1	184.9	2.2
% Correct	46.3%		68.0%		87.4%	
Grade 12						
Round 1	141.8	6.4	164.9	6.5	189.3	8.1
Round 2	142.6	3.5	165.6	3.2	189.7	4.5
Round 3	142.8	3.4	165.8	2.7	187.7	4.7
Final	143.1	3.3	165.8	2.4	186.8	4.1
% Correct	54.7%		74.2%		89.7%	

Note: Percent correct data are estimates of the percentage of possible points required for a score at the lower borderline of each achievement level. Read: "Students would have to get at least 89.7 percent of the possible points on the items to score at the advanced level in grade 12."

J.10 ADDITIONAL ANALYSIS OF THE 1998 DATA

Additional analyses were completed to examine the effects of item type, panelist type, panelists' demographics, common blocks, "extreme raters" and other patterns detected through Reckase charts, effect of consequences data on panelists, responses to specific questionnaire items, and rating-group/table-group membership on the item ratings. Mean cut scores were analyzed by grade level for differences by subgroups. Some notable significant differences for each subject area by subgroup are described below.

Writing. Among all the comparisons by rating group (i.e., one-half of the grade-level group), no significant differences were found across all rounds for grades 4 and 8, and grade 12 at the proficient and advanced levels. However, for grade 12 basic, there were significant differences between the two rating groups (A and B)² across all four rounds. In subsequent analyses using a multiple comparisons procedure

² Both panelists and item pool are divided in half for purposes of conducting the ratings. The criteria for dividing panelists are the background characteristics such as gender, race/ethnicity, and type of district. The criteria for dividing item pool are item formats, item difficulty, and numbers of items, ensuring there are some item blocks in common across rating groups. The purpose of this design is to allow a direct estimation of the standard error using Brennan's generalizability coefficient.

and controlling for other variables (i.e., table group, panelist type, gender, ethnicity, and region) there were no significant differences among the rating groups at grade 12 basic. There were no significant gender or regional differences for all grades and all levels. Some modest differences were noted for ethnicity and panelist type (e.g., teacher, nonteacher educator, or general public). Table J-5 and J-6 display some of these results.

Table J-5
*Mean Cut Scores and Standard Deviations in Writing, by Panelist Type**

	Type	n	Basic		Proficient		Advanced	
			Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Grade 4								
Round 1	Teacher	16	138.6	3.7	163.8	4.6	185.8	5.8
	Nonteacher Ed.	5	137.5	5.9	163.2	2.2	186.7	3.4
	General Public	8	136.4	7.9	161.0	7.5	185.8	6.1
Round 2	Teacher	16	139.2	3.8	166.0	2.6	187.9	5.1
	Nonteacher Ed.	5	139.5	3.7	165.1	1.8	187.6	4.8
	General Public	8	137.8	5.4	162.1	5.6	185.8	3.4
Round 3	Teacher	16	139.7	3.2	165.8	1.8	186.2	4.9
	Nonteacher Ed.	5	140.4	2.6	165.7	1.8	185.3	4.5
	General Public	8	137.9	5.4	162.5	5.4	186.2	3.9
Final	Teacher	16	139.9	2.7	165.7	1.9	185.3	4.8
	Nonteacher Ed.	5	140.4	2.3	165.6	1.7	183.4	2.7
	General Public	8	138.1	5.1	162.9	5.1	184.9	3.0
Grade 8								
Round 1	Teacher	19	138.3	6.7	163.4	6.7	186.4	4.0
	Nonteacher Ed.	4	141.0	5.9	164.2	3.5	183.5	2.1
	General Public	7	138.1	7.1	163.9	3.9	184.4	5.0
Round 2	Teacher	19	139.8	3.6	163.7	2.7	185.4	2.2
	Nonteacher Ed.	4	140.2	4.2	164.6	2.2	184.5	0.6
	General Public	7	139.6	4.1	164.4	2.4	185.3	3.3
Round 3	Teacher	19	139.7	3.2	163.6	2.2	185.1	2.0
	Nonteacher Ed.	4	139.7	3.6	163.5	1.4	184.1	0.5
	General Public	7	139.9	3.6	164.3	2.7	185.1	3.3
Final	Teacher	19	139.5	2.7	163.5	2.2	185.1	2.1
	Nonteacher Ed.	4	139.8	3.9	163.8	1.5	182.5	2.4
	General Public	7	140.0	3.7	164.1	2.1	185.6	2.0

* Comparisons (mean differences) significant at the 0.05 level are bold-faced.

(continued)

Table J-5 (continued)
*Mean Cut Scores and Standard Deviations in Writing, by Panelist Type**

	Type	n	Basic		Proficient		Advanced	
			Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Grade 12								
Round 1	Teacher	15	143.5	6.4	165.8	6.6	191.2	7.9
	Nonteacher Ed.	6	142.4	5.2	163.4	7.1	190.7	7.8
	General Public	8	139.1	7.0	164.3	6.5	188.6	9.4
Round 2	Teacher	15	143.0	3.9	165.6	3.4	190.5	4.7
	Nonteacher Ed.	6	142.9	2.0	164.8	3.0	190.1	3.9
	General Public	8	141.8	3.8	166.3	2.9	189.1	4.8
Round 3	Teacher	15	143.0	3.6	165.8	2.8	188.8	4.6
	Nonteacher Ed.	6	143.1	2.3	165.4	2.9	187.0	5.3
	General Public	8	142.2	4.0	166.1	2.6	187.6	4.6
Final	Teacher	15	143.2	3.3	165.5	2.8	186.7	4.2
	Nonteacher Ed.	6	144.2	2.2	166.5	0.5	186.7	4.3
	General Public	8	142.1	4.0	166.0	2.6	187.1	4.5

* Comparisons (mean differences) significant at the 0.05 level are bold-faced.

Table J-6
Mean Cut Scores and Standard Deviations in Writing, by Ethnicity

	Ethnicity	n	Basic		Proficient		Advanced	
			Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Grade 4								
Round 1	White	22	138.1	5.7	163.6	4.8	185.7	5.5
	Black	5	135.7	4.8	157.9	5.1	184.7	4.7
	Hispanic	1	142.0	—	165.1	—	193.9	—
	Other	1	137.3	—	169.7	—	190.1	—
Round 2	White	22	139.1	4.3	165.4	3.1	187.1	3.8
	Black	5	137.0	3.0	161.0	5.4	185.1	2.8
	Hispanic	1	145.9	—	168.9	—	202.5	.
	Other	1	137.7	—	166.0	—	187.2	.
Round 3	White	22	139.6	3.8	165.4	2.6	185.7	4.2
	Black	5	137.1	2.6	161.2	4.8	184.7	2.8
	Hispanic	1	145.9	—	168.9	—	197.6	—
	Other	1	138.2	—	166.2	—	187.3	—
Final	White	22	139.8	3.3	165.4	2.4	184.5	3.6
	Black	5	137.0	2.5	161.6	4.7	184.0	1.4
	Hispanic	1	146.0	—	169.0	—	198.0	—
	Other	1	138.0	—	166.0	—	184.0	—
Grade 8								
Round 1	White	24	139.5	5.7	164.4	5.1	186.2	4.4
	Black	3	129.1	7.2	157.5	10.0	182.6	1.3
	Asian/Pacific	3	141.1	5.2	162.8	2.4	183.2	0.3
Round 2	White	24	139.9	3.5	164.2	2.6	185.6	2.3
	Black	3	136.4	0.4	161.7	1.9	184.2	1.8
	Asian/Pacific	3	142.3	4.3	164.0	1.8	183.0	0.7
Round 3	White	24	139.8	3.1	163.9	2.3	185.3	2.3
	Black	3	136.8	0.6	162.1	1.7	184.6	1.5
	Asian/Pacific	3	142.1	4.3	163.8	1.0	182.8	0.5
Final	White	24	140.0	3.1	163.9	2.2	185.2	2.3
	Black	3	136.7	0.6	162.0	1.7	184.7	1.5
	Asian/Pacific	3	140.3	3.1	164.0	1.0	182.7	0.6
Grade 12								
Round 1	White	20	141.4	6.0	164.2	5.2	190.3	8.0
	Black	5	144.3	8.4	165.3	6.5	187.0	6.3
	Asian/Pacific	2	137.2	4.3	159.5	10.9	191.4	16.0
	Other	2	148.8	0.4	176.4	7.8	198.6	4.5
Round 2	White	20	142.4	3.8	165.1	3.4	189.7	4.5
	Black	5	142.9	3.4	165.7	1.8	188.1	3.7
	Asian/Pacific	2	141.3	1.1	166.6	1.2	193.6	4.5
	Other	2	146.1	0.3	169.0	3.5	194.5	4.9
Round 3	White	20	142.5	3.6	165.4	2.9	187.5	4.5
	Black	5	143.3	3.1	166.1	1.3	188.5	2.1
	Asian/Pacific	2	141.8	1.0	166.6	0.9	192.3	3.8
	Other	2	146.1	0.3	168.9	3.4	188.5	12.2
Final	White	20	142.9	3.6	165.5	2.7	186.7	4.1
	Black	5	143.4	3.2	166.2	1.5	186.0	2.1
	Asian/Pacific	2	141.5	0.7	166.5	0.7	190.0	2.8
	Other	2	146.0	0.0	168.0	1.4	187.5	10.6

Note: Comparisons (mean differences) significant at the 0.05 level are bold-faced.

Civics. Similar findings were obtained in civics as in writing. Multiple comparison tests showed significant differences among rating groups only for grade 4 basic (Round 1 only) and grade 12 advanced

(Round 2 only). There were no significant gender differences; however, there were some modest differences by region, ethnicity, and panelist type as shown in Tables J-7 and J-8. A full description of these analyses and the results can be found in ACT's final reports (ACT, 1999b; 1999d).

Table J-7
Mean Cut Scores and Standard Deviations in Civics, by Ethnicity

	Ethnicity	n	Basic		Proficient		Advanced	
			Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Grade 4								
Round 1	White	24	147.0	9.7	163.7	4.7	175.7	5.8
	Black	3	155.2	2.7	169.0	3.5	179.2	5.9
	Asian/Pacific	2	156.0	12.1	163.0	2.3	172.6	4.0
	Native	1	132.7	—	153.3	—	164.3	—
	Hispanic	1	135.4	—	162.9	—	178.1	—
Round 2	White	24	148.1	5.3	164.0	3.5	177.5	4.5
	Black	3	156.5	2.8	168.1	1.4	177.0	5.8
	Asian/Pacific	2	146.6	0.1	162.2	1.3	173.3	4.2
	Native	1	145.5	—	159.3	—	174.4	—
	Hispanic	1	138.9	—	161.8	—	174.4	—
Round 3	White	24	149.5	5.2	164.7	3.4	178.5	4.5
	Black	3	156.4	2.8	167.9	1.2	177.1	5.6
	Asian/Pacific	2	146.8	0.5	162.2	0.8	173.5	3.7
	Native	1	145.3	—	159.4	—	173.9	—
	Hispanic	1	140.8	—	162.5	—	175.1	—
Final	White	24	150.2	4.7	164.8	3.2	178.6	3.7
	Black	3	156.3	2.9	168.0	1.0	177.0	5.6
	Asian/Pacific	2	146.5	0.7	162.5	0.7	173.5	3.5
	Native	1	145.0	—	159.0	—	174.0	—
	Hispanic	1	145.0	—	163.0	—	175.0	—

Note: Comparisons (mean differences) significant at the 0.05 level are bold-faced.

(continued)

Table J-7 (continued)
Mean Cut Scores and Standard Deviations in Civics, by Ethnicity

	Ethnicity	n	Basic		Proficient		Advanced	
			Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Grade 8								
Round 1	White	22	147.1	7.9	164.8	3.2	177.1	4.8
	Black	4	142.8	17.4	165.0	4.6	177.7	2.1
	Hispanic	2	156.7	8.6	168.7	5.9	181.5	4.2
Round 2	White	1	153.5	—	167.1	—	177.9	—
	Black	22	148.6	5.6	165.0	2.6	177.0	4.0
	Hispanic	4	147.2	5.4	164.7	4.0	177.6	1.3
	Other	2	157.6	9.6	169.6	5.1	181.9	1.6
Round 3	White	1	148.2	—	164.1	—	174.8	—
	Black	22	149.2	5.0	165.2	2.4	177.1	3.9
	Hispanic	4	146.9	5.0	164.7	3.8	177.5	1.2
	Other	2	158.0	9.8	170.1	4.6	182.9	2.5
Final	White	1	146.7	—	163.3	—	174.5	—
	Black	22	148.9	4.6	165.3	2.3	177.7	2.9
	Hispanic	4	147.0	5.0	164.8	4.0	177.3	1.3
	Other	2	158.0	9.9	170.0	4.2	183.0	2.8
Grade 12								
Round 1	White	23	150.6	6.3	163.9	4.0	175.3	6.1
	Black	3	153.2	12.7	164.0	4.2	172.7	4.0
	Hispanic	1	141.2	—	158.0	—	172.3	—
Round 2	White	23	151.0	4.5	164.3	3.6	175.5	3.7
	Black	3	145.6	5.7	162.7	1.6	172.3	1.6
	Hispanic	1	139.3	—	158.1	—	174.3	—
Round 3	White	23	151.2	4.6	164.5	3.7	175.9	3.7
	Black	3	149.5	5.2	163.2	1.6	172.5	1.5
	Hispanic	1	138.6	—	158.4	—	175.1	—
Final	White	23	151.3	4.1	164.3	3.2	175.6	3.4
	Black	3	149.7	4.9	163.0	1.7	172.3	1.5
	Hispanic	1	150.0	—	163.0	—	175.0	—

Note: Comparisons (mean differences) significant at the 0.05 level are bold-faced.

Table J-8
Mean Cut Scores and Standard Deviations in Civics, by Panelist Type

	Ethnicity	n	Basic		Proficient		Advanced	
			Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Grade 4								
Round 1	Teacher	19	145.1	10.5	163.3	5.4	175.1	5.7
	Nonteacher Ed.	4	153.3	4.9	165.4	1.6	176.1	7.2
	General Public	8	150.4	9.6	164.0	5.0	176.4	6.7
Round 2	Teacher	19	147.6	6.4	163.4	3.7	175.5	3.9
	Nonteacher Ed.	4	152.8	3.2	166.6	1.4	179.7	2.5
	General Public	8	148.1	4.2	164.3	3.4	179.2	5.1
Round 3	Teacher	19	149.0	5.5	163.9	3.3	176.3	3.7
	Nonteacher Ed.	4	154.9	5.9	168.0	3.2	181.3	3.6
	General Public	8	148.3	3.8	164.5	3.2	179.7	5.3
Final	Teacher	19	149.6	5.0	164.1	3.0	176.8	3.1
	Nonteacher Ed.	4	155.0	5.8	167.5	3.0	181.3	3.6
	General Public	8	149.3	3.2	164.6	3.4	178.5	5.1
Grade 8								
Round 1	Teacher	16	145.2	11.4	165.1	4.0	178.0	4.3
	Nonteacher Ed.	4	156.3	2.6	167.3	2.0	178.7	6.6
	General Public	9	147.2	5.2	164.5	3.0	176.2	3.7
Round 2	Teacher	16	148.2	7.2	165.5	3.6	178.3	3.6
	Nonteacher Ed.	4	153.3	3.4	164.8	2.0	175.2	5.7
	General Public	9	148.7	3.5	165.1	2.4	176.7	2.8
Round 3	Teacher	16	148.9	6.9	165.8	3.5	178.5	3.7
	Nonteacher Ed.	4	153.0	3.3	164.6	2.0	174.8	5.5
	General Public	9	148.9	3.1	165.1	2.1	176.8	2.7
Final	Teacher	16	148.8	6.6	165.7	3.4	178.8	3.2
	Nonteacher Ed.	4	151.5	3.0	165.3	1.7	177.3	1.3
	General Public	9	149.0	3.2	165.1	2.1	176.7	2.8
Grade 12								
Round 1	Teacher	17	150.8	8.2	163.6	4.3	175.0	6.9
	Nonteacher Ed.	4	149.1	6.3	161.0	3.2	171.6	2.1
	General Public	6	151.1	4.6	165.9	2.3	176.7	2.5
Round 2	Teacher	17	149.2	5.3	163.6	3.2	174.9	3.6
	Nonteacher Ed.	4	147.5	5.3	160.5	3.1	172.2	1.5
	General Public	6	153.7	3.4	166.9	2.8	177.6	3.3
Round 3	Teacher	17	150.2	5.1	164.0	3.1	175.5	3.6
	Nonteacher Ed.	4	147.3	5.5	160.3	3.7	172.4	1.7
	General Public	6	153.7	3.4	166.9	2.8	177.7	3.4
Final	Teacher	17	151.0	4.0	164.1	2.1	175.0	3.3
	Nonteacher Ed.	4	148.0	4.6	160.3	3.6	172.8	2.5
	General Public	6	153.2	3.1	166.7	2.4	177.3	3.3

Note: Comparisons (mean differences) significant at the 0.05 level are bold-faced.

In past standard-setting activities, significant differences in cut scores were found between the dichotomously and polytomously scored exercises. Table J-9 displays the means and standard deviations estimated from panelists' ratings for each item type on the 1998 civics. Pairwise comparisons of cut scores show that some of these differences are still significant. However, real differences are very much reduced over prior standard-setting efforts. There is no direct empirical evidence to suggest why this is the case. However, it is hypothesized that panelists were more aware of the relationship between and among various items (both dichotomous and polytomous) as they worked with the Reckase charts. This feature impacted the panelists' ratings in such a way as to reduce differences across item types.

Table J-9
Mean Differences Between Polytomous and Dichotomous Cut Scores for Civics

Achievement Level	Item Type	Grade					
		4 (n=31)		8 (n=29)		12 (n=27)	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Basic	Dichotomous	147.2	5.4	147.0	6.7	147.8	7.9
	Polytomous	151.1	7.5	150.3	6.0	151.4	5.9
	Both	149.5	5.4	149.4	5.6	150.5	5.1
Proficient	Dichotomous	161.9	3.3	163.9	3.6	163.4	4.0
	Polytomous	169.5	5.9	167.5	3.3	165.6	5.8
	Both	164.6	3.4	165.4	2.9	164.1	3.6
Advanced	Dichotomous	175.0	3.8	176.5	4.2	175.0	3.7
	Polytomous	186.4	10.7	180.0	4.4	178.7	9.1
	Both	177.8	4.5	177.5	3.8	175.5	3.6

Note: These grade-level cut points were aggregated outcomes from individual cut points. They were different from the group cut points reported to the panelists on site. They were only used to show the combined average to compare the dichotomous and polytomous cut points.

J.11 SELECTING EXEMPLAR ITEMS

On the final day of the achievement level-setting process, panelists reviewed all items from the item pools in civics or writing that were marked for release. This process was implemented after the final round of ratings so that the recommended cut scores could be used to judge whether or not the released exercises or exemplary student responses met the statistical criterion. Since the process for selecting exemplars is different for civics and writing (due to the nature of the assessment) the procedures will be described separately.

Civics. In civics, exercises are organized in blocks consisting of several items, usually employing each of the three item formats, (i.e., multiple choice, short constructed response, and extended constructed response). Before the review process, potential released exercises were categorized using statistical criteria recommended by the Technical Advisory Committee on Standard Setting (TACSS), the group that advises ACT on technical decisions throughout the process. Items having an average $rp = .50$ for scores within the achievement-level ranges were included in the list of items submitted to panelists for their consideration. Further, items were ranked according to their discrimination indices and all items at or above the 40th percentile that met the statistical criterion were identified as potential exemplars. Items were listed at the lowest level for which they met the criterion. Constructed-response items were treated as unique items at each score point, and thus, could meet the criterion $n-1$ times, where n = the number of score categories. Items could be recommended as exemplars at a higher level than the

statistical criterion placed them (based on content), but could not be placed at a lower level, since the mean *rp* would fall below .50 at a lower level. In the actual process for identifying exercises, panelists are instructed to veto any items that they feel do not meet the content criterion; that is, items that do not reflect the achievement-level descriptions may be discarded from consideration as appropriate exemplars for the assessment. The purpose for this veto process is to encourage the inclusion of as many items as possible for reporting the assessment results.

Writing. In writing, the exemplars consist of not only the prompt and the scoring rubric, but exemplary student responses as well. Therefore, all potential released prompts were considered by panelists along with selected anchor papers that had been used in both training scorers and in the standard-setting process, and met the criterion of representing student performance at the appropriate level. Panelists were instructed to veto those responses that, in their judgment, did not meet the content criterion, that is, consistency with the achievement-level descriptions.

J.12 1998 RESEARCH STUDIES ON THE ACHIEVEMENT LEVELS

In 1998, two studies that were conducted independently in 1994 to examine the various aspects of the validity of the NAEP achievement levels were combined into a single study. The first, the similarity classification study (SCS), was designed to compare the classifications of students according to the achievement-level descriptions by students' teachers with the classification of the same students according to their performance on a specially designed version of NAEP that yielded individual scores. The second, the booklet classification study (BCS), was designed to compare the performances of students (as demonstrated in their NAEP booklets) with the knowledge and skills described in the NAEP achievement level descriptions.

The purpose of these two studies conducted in tandem was to overcome some of the shortcomings of the 1994 studies. In fact, findings from the 1994 SCS study were countered by the results from the 1994 BCS study. The BCS in history and geography indicated that the achievement levels may have been set too low, while the SCS study indicated just the opposite, that is, the levels may have been set too high. The design of the earlier study did not allow any rational hypothesis to be entertained since different groups of panelists were involved, and the studies were conducted at different times in the process. The intent of the current design was to overcome these shortcomings. The current design included the same panelists to classify expected performance of their students *and* to classify student booklets (some of which were also their students). Further, the special form of NAEP designed for the study included enough items to provide a reliable individual score estimate. Further design features in the selection of booklets eliminated the need to deal with "not reached" items as "not administered."

The logic of the SCS study was to explore whether teachers who participated in the ALS studies, and who had been well-trained in the use of the achievement level descriptions, could indeed apply those descriptions to the task of classifying their own students, when the empirical performance of their students was known from the students' performance on the special form of NAEP. In addition, the BCS study was designed to test whether those same teachers could examine booklets of student work (some of which were written by their own students) and, using the achievement levels descriptions, classify the student performances according to the levels.

The SCS component was conducted with only grade 8 students and their teachers who participated in either the 1998 civics ALS pilot or the ALS meeting. Thirteen teachers and 461 students participated in the study. Each student was administered a special form of the NAEP (four blocks) requiring 100 minutes of testing time. The special form was developed to meet certain minimum criteria, was administered by Westat under the same conditions as a standardized NAEP administration, and scored by NCS using scoring procedures identical to those used to score the 1998 NAEP

administration. The purpose of the double-length NAEP was to be able to estimate directly the NAEP scores for students without having to use the conditioning model and plausible values technology.

Students' performances were classified by their teachers based on their knowledge of the students relative to the assessment framework and the achievement-level descriptions. Students' actual performances were subsequently classified according to their scores on the extended NAEP assessment. The results of these two classifications were compared.

The second component of the study, BCS, was conducted with the same panelists. The panelists examined 40 student double-length booklets that had been used in the SCS component of the study and were chosen according to a set of criteria appropriate to meet the goals of the study. Booklets from the individual panelists' students were embedded in the set of 40 booklets. Prior to the panel meeting, all booklets in the study had been classified according to the achievement-levels cut scores as either basic, proficient, or advanced. Panelists were asked to classify the booklets in the same way, but without having the knowledge of the empirical classification provided through the scoring for each booklet.

The details of the design of this study and the results may also be found in the ACT research report that will be published at the completion of the project in 2000. As in any study of this nature, the results are subject to many caveats, and ACT points out several of these in their report. These studies certainly are not intended to be definitive of the validity of the achievement levels. They are an indication, however, that additional data analyses need to be completed in order to probe more fully the technical characteristics of the levels as adopted by the NAGB.

Figure J-3
Achievement-Level Descriptions for Civics

<p>Grade 4 Basic XXX</p>	<p><i>Fourth-grade students performing at the basic level should have an understanding of what government is and what it does, and they should be able to identify some things that government is not allowed to do. These students should have some understanding of the foundations of the American political system. In the context of their school and community, they should understand rules and laws, rights and responsibilities, and ways to participate in governing. These students should know that the world is divided into many countries.</i></p> <p>Fourth-grade students performing at the basic level should have some understanding of what government is and what it does, and they should be able to identify some things that government is not allowed to do. They should be able to explain purposes of rules in the school and the community, and to describe what happens when people break laws. These students should understand how national holidays and symbols such as the flag, the Statue of Liberty, and the Fourth of July reflect shared American values, and they should be able to identify different types of diversity in American society. They should be able to describe ways to settle disagreements or conflicts peacefully. They should be able to name the president and their state governor and to identify the rights and responsibilities of a citizen. They should know some ways that students can participate in governing their school and community, and they should be able to describe qualities of a good leader. Finally, these students should know that the world is divided into many countries.</p>
<p>Grade 4 Proficient XXX</p>	<p><i>Fourth-grade students performing at the proficient level should have a good understanding of what the American government does and of why it is not allowed to act in certain ways. These students should have an age-appropriate understanding of the foundations of the American political system. They should understand purposes of laws, ways shared beliefs unify Americans, what it means to be a citizen, and rights and responsibilities of citizens, and the idea of public participation in governing. These students should be able to describe ways in which countries interact with one another.</i></p> <p>Fourth-grade students performing at the proficient level should have a good understanding of what the American government does and of why it is not allowed to act in certain ways. They should be able to explain why we have laws. These students should be able to recognize diversity in American society and that Americans are united by shared beliefs and principles. They should know that the Constitution and the Declaration of Independence are founding documents of American democracy. They should be able to explain how people make decisions about the ways they live together in a democracy and how groups in schools and communities can manage conflict peacefully. They should know what it means to be a citizen of their state and the nation, and they should be able to distinguish between rights and responsibilities of citizens. They should understand why it is important for people to participate in governing their school and community. Finally, these students should be able to describe ways in which countries interact with one another.</p>

(continued)

Figure J-3 (continued)
Achievement-Level Descriptions for Civics

<p>Grade 4 Advanced XXX</p>	<p><i>Fourth-grade students performing at the advanced level should understand and be able to explain some purposes of government. When given age-appropriate examples, they should recognize differences between power and authority and between limited and unlimited government. They should be able to explain the importance of shared values in American democracy, to identify ways citizens can participate in governing, and to understand that with rights comes responsibilities. They should be able to explain how nations benefit when they resolve conflicts peacefully.</i></p> <p>Fourth-grade students performing at the advanced level should understand and be able to explain some purposes of government. They should recognize differences between power and authority when given examples and should understand differences between limited and unlimited government. These students should be able to explain why it is important that citizens share a commitment to the values of American democracy, and they should be aware of the benefits and challenges of both unity and diversity in American society. They should be able to distinguish between services provided by local and state levels of government. These students should be able to describe how government can make it possible for people to accomplish goals they could not achieve alone. They should be able to identify ways in which citizens can keep track of their government’s actions, and they should understand the connection between rights and responsibilities of a citizen. Finally, they should be able to explain how nations benefit when they resolve conflicts peacefully.</p>
<p>Grade 8 Basic XXX</p>	<p><i>Eighth-grade students performing at the basic level should have some understanding of competing ideas about purposes of government, and they should be able to describe advantages of limited government. They should be able to define government, constitution, the rule of law, and politics. They should be able to identify the fundamental principles of American democracy and the documents from which they originate, and they should understand the importance of a shared commitment to the core values of American democracy. They should recognize the components of the political process and understand personal, political, and economic rights and responsibilities. They should be able to describe the purposes of some international organizations.</i></p> <p>Eighth-grade students performing at the basic level should have some understanding of competing ideas about purposes of government, and they should be able to describe advantages of limited government. They should be able to define what is meant by government, constitution, the rule of law, and politics. These students should be able to identify fundamental principles and values of American democracy, such as federalism, the separation of powers, checks and balances, government by the consent of the governed, and individual rights. They should understand that the Declaration of Independence and the United States Constitution including the Bill of Rights and other Amendments are sources of these ideas. These students should be able to explain why it is important that citizens share the values and principles expressed in the nation’s core documents, and they should understand functions of elections, political parties, and interest groups in a democratic society. They should know that American citizenship is attained by birth or through naturalization. They should be able to identify personal, political, and economic rights of Americans and should understand the responsibilities that these rights imply. Finally, these students should be able to describe purposes of international organizations to which the United States belongs.</p>

(continued)

Figure J-3 (continued)
Achievement-Level Descriptions for Civics

<p>Grade 8 Proficient XXX</p>	<p><i>Eighth-grade students performing at the proficient level should understand and be able to explain purposes that government should serve. These students should have a good understanding of differences between government and civil society and of the importance of the rule of law. They should recognize discrepancies between American ideals and reality and be able to describe continuing efforts to address them. They should understand the separation and sharing of powers among branches of government and between federal and state governments, and they should be able to explain how citizens influence government. They should be able to describe events within the United States and other countries that have international consequences.</i></p> <p>Eighth-grade students performing at the proficient level should have a good understanding of the purposes that government should serve, and they should be able to explain why government should serve those purposes. These students should understand differences between government and civil society, and they should be able to explain the importance of the rule of law. They should be able to point out ways in which ideals expressed in the nation’s core documents differ from reality and to identify ways in which these differences continue to be addressed. They should be able to explain how and why legislative, executive, and judicial powers are separate, shared, and limited in the American constitutional government, and they should understand how and why powers are divided and shared between the national and state governments. They should be able to discuss ways that citizens can use the political process to influence government. These students should be able to provide simple interpretations of non-text-based information, like maps, charts, tables, graphs, and cartoons. Finally, these students should be able to describe events in the United States that have influenced other nations, as well as events in other nations that have affected American policy.</p>
<p>Grade 8 Advanced XXX</p>	<p><i>Eighth-grade students performing at the advanced level should have a developed understanding of how civil society helps to maintain limited government and why the rule of law is important. These students should have a clear understanding of issues in which democratic values are in conflict and of past efforts to address the discrepancies between American ideals and reality. They should understand how citizens can monitor and influence government and how responsible citizens support democracy. They should recognize the impact of American democracy on other countries, as well as other countries’ impact on American politics and society.</i></p> <p>Eighth-grade students performing at the advanced level should have a developed understanding of why civil society plays a key role in maintaining a limited government and of the importance of the rule of law in civil society and government. These students should be able to take positions on issues in which fundamental values are in conflict, liberty and equality, individual rights and the common good, and majority rule and minority rights, for example, and they should be able to defend their positions. They should be able to evaluate results of past efforts to address discrepancies between American ideals and national reality and to explain how citizens can monitor and influence local, state, and national government. These students should understand how laws can achieve purposes of American constitutional government, such as promoting the common good and protecting rights of individuals. They should understand how civic dispositions such as civility, tolerance, and respect for law promote the healthy functioning of American constitutional democracy. Finally, these students should understand the impact of American democracy on other countries, as well as the impact of other countries on American politics and society.</p>

(continued)

Figure J-3 (continued)
Achievement Level-Descriptions for Civics

<p>Grade 12 Basic XXX</p>	<p><i>Twelfth-grade students performing at the basic level should have an understanding of what is meant by civil society, constitutional government, and politics. They should know that constitutional governments can take different forms, and they should understand the fundamental principles of American constitutional government and politics, including functions of political parties and other organizations. They should understand both rights and responsibilities in a democratic society, and they should recognize the value of political participation. They should be familiar with international issues that affect the United States.</i></p> <p>Twelfth-grade students performing at the basic level should have an understanding of what is meant by civil society, constitutional government, and politics. They should know that constitutional governments can take different forms, and they should understand the fundamental principles of American constitutional government. These students should be able to explain ways that political parties, interest groups, and the media contribute to elections, and they should be able to point out sources of information about public policy issues. They should understand that both power and rights must be limited in a free society. They should be able to identify those traits that make people responsible citizens, and they should be able to describe forms of political participation available in a democracy and recognize reasons that such participation is important. These students should be able to provide simple interpretations of non-text-based information, like maps, charts, tables, graphs, and cartoons. Finally, they should be familiar with international issues that affect the United States.</p>
<p>Grade 12 Proficient XXX</p>	<p><i>Twelfth-grade students performing at the proficient level should have a good understanding of how constitutions can limit the power of government and support the rule of law. They should be able to describe similarities and differences among constitutional systems of government, and they should be able to explain fundamental American democratic values, their applications, and their contribution to expanding political participation. They should understand the structure of American government and be able to evaluate activities of political parties, interest groups, and media in public affairs. They should be able to explain the importance of political participation, public service, and political leadership. They should be able to describe major elements of American foreign policy and the performance of major international organizations.</i></p> <p>Twelfth-grade students performing at the proficient level should have a good understanding of how constitutions can limit the power of government and support the rule of law. They should be able to distinguish between parliamentary systems of government and those based on separate and shared powers, and they should be able to describe the structure and functions of American government. These students should be able to identify issues in which fundamental democratic values and principles are in conflict, liberty and equality, individual rights and the common good, and majority rule and minority rights, for example, and they should be able to take and defend positions on these issues. They should be able to evaluate ways that law protects individual rights and promotes the common good in American society. They should understand how the application of fundamental principles of American constitutional democracy has expanded participation in public life, and they should be able to explain how citizens can work individually and collectively to monitor and influence public policy. These students should understand the importance and means of participation in political life at the national, state, and local levels. They should be able to evaluate contributions made by political parties, interest groups, and the media to the development of public policy, and they should be able to explain how public service and political leadership contribute to American democracy. They should understand how American foreign policy is made and carried out, and they should be able to evaluate the performance of major international organizations. Finally, these students should be able to discuss reasons for and consequences of conflicts that arise when international disputes cannot be resolved peacefully.</p>

(continued)

Figure J-3 (continued)
Achievement-Level Descriptions for Civics

<p>Grade 12 Advanced XXX</p>	<p><i>Twelfth-grade students performing at the advanced level should have a thorough and mature understanding of the strengths and weaknesses of various forms of constitutional democracy. They should be able to explain fully the structure of American government and the political process. They should understand differences between American ideals and realities, and they should be able to explain past and present responses to those differences. They should understand why civic dispositions and individual and collective political actions sustain democracy. They should be able to explain objectives and consequences of American foreign policy.</i></p> <p>Twelfth-grade students performing at the advanced level should have a thorough and mature understanding of the strengths and weaknesses of various forms of constitutional democracy. They should be able to discuss advantages and disadvantages of confederal, federal, and unitary systems of government, as well as strengths and weaknesses of parliamentary systems of government when compared with those based on separate and shared powers. These students should be able to explain how the structure of American government and the nation’s social and political cultures serve one another. They should know which level and agency of government to contact to express their opinions or influence public policy. They should be able to explain and evaluate past and present individual and collective political actions aimed at narrowing the gap between American ideals and national reality. They should understand how elections help determine public policies, and they should be able to evaluate public policy issues in which fundamental values and principles are in conflict, liberty and equality, individual rights and the common good, and majority rule and minority rights, for example. These students should be able to evaluate the validity and emotional appeal of past and present political communication. They should be able to explain how civic dispositions such as civility, tolerance, and respect for law are important for preserving democracy, and they should be able to evaluate the many forms of participation in public affairs. Finally, they should be able to explain how American foreign policy is made and carried out and to evaluate its consequences.</p>
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Figure J-4

Achievement-Level Descriptions for Writing

The following statements describe the kinds of things fourth-grade students should be able to do in writing at each level of achievement. These statements should be interpreted with the constraints of the National Assessment of Educational Progress in mind. Student performances reported with respect to these descriptions are in response to two age-appropriate writing tasks completed within 25 minutes each. Students are not advised of the writing tasks in advance nor engaged in prewriting instruction and preparation; however, they are given a set of “ideas for planning and evaluating” their writing for the assessment. Although the writing NAEP cannot fully assess students’ abilities to produce a polished piece of writing, the results do provide valuable information about students’ abilities to generate writing in response to a variety of purposes, tasks, and audiences within a rather limited period of time.

<p>Grade 4 Basic YYY</p>	<p><i>Fourth-grade students performing at the basic level should be able to produce a somewhat organized and detailed response within the time allowed that shows a general grasp of the writing task they have been assigned.</i></p> <p>Fourth-grade students performing at the basic level should be able to produce a somewhat organized response within the time allowed that shows a general grasp of the writing task they have been assigned. Their writing should include some supporting details. Its grammar, spelling, and capitalization should be accurate enough to communicate to a reader, although there may be mistakes that get in the way of meaning.</p>
<p>Grade 4 Proficient YYY</p>	<p><i>Fourth-grade students performing at the proficient level should be able to produce an organized response within the time allowed that shows an understanding of the writing task they have been assigned. Their writing should include details that support and develop their main idea, and it should show that these students are aware of the audience they are expected to address.</i></p> <p>Fourth-grade students performing at the proficient level should be able to produce an organized response within the time allowed that shows an understanding of the writing task they have been assigned. Their writing should include details that support and develop the main idea of the piece, and its form, content, and language should show that these students are aware of the audience they are expected to address. The grammar, spelling, and capitalization in the work should be accurate enough to communicate to a reader; there may be some mistakes, but these should not get in the way of meaning.</p>
<p>Grade 4 Advanced YYY</p>	<p><i>Fourth-grade students performing at the advanced level should be able to produce an effective, well-developed response within the time allowed that shows a clear understanding of the writing task they have been assigned and the audience they are expected to address. Their writing should include details and be clearly organized, should use precise and varied language, and may show signs of analytical, evaluative, or creative thinking.</i></p> <p>Fourth-grade students performing at the advanced level should be able to produce an effective, well-developed response within the time allowed that shows a clear understanding of the writing task they have been assigned. Their writing should be clearly organized, making use of techniques such as consistency in topic or theme, sequencing, and a clearly marked beginning and ending. It should make use of precise and varied language to speak to the audience the students are expected to address, and it should include details and elaboration that support and develop the main idea of the piece. Their writing may also show signs of analytical, evaluative, or creative thinking. The grammar, spelling, and capitalization in the work should be accurate enough to communicate clearly; mistakes should be so few and so minor that a reader can easily skim over them.</p>

(continued)

Figure J-4 (continued)

Achievement-Level Descriptions for Writing

The following statements describe the kinds of things eighth-grade students should be able to do in writing at each level of achievement. These statements should be interpreted with the constraints of the National Assessment of Educational Progress in mind. Student performances reported with respect to these descriptions are in response to two age-appropriate writing tasks completed within 25 minutes each. Students are not advised of the writing tasks in advance nor engaged in prewriting instruction and preparation; however, they are given a set of “ideas for planning and evaluating” their writing for the assessment. Although the writing NAEP cannot fully assess students’ abilities to produce a polished piece of writing, the results do provide valuable information about students’ abilities to generate writing in response to a variety of purposes, tasks, and audiences within a rather limited period of time.

<p>Grade 8 Basic YYY</p>	<p><i>Eighth-grade students performing at the basic level should be able to produce an effective response within the time allowed that shows a general understanding of the writing task they have been assigned. Their writing should show that these students are aware of the audience they are expected to address, and it should include supporting details in an organized way.</i></p> <p>Eighth-grade students performing at the basic level should be able to produce an effective response within the time allowed that shows a general understanding of the writing task they have been assigned. Their writing should show that these students are aware of the audience they are expected to address, and it should include supporting details in an organized way. The grammar, spelling, punctuation, and capitalization in the work should be accurate enough to communicate to a reader, although there may be mistakes that get in the way of meaning.</p>
<p>Grade 8 Proficient YYY</p>	<p><i>Eighth-grade students performing at the proficient level should be able to produce a detailed and organized response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should include precise language and varied sentence structure, and it may show analytical, evaluative, or creative thinking.</i></p> <p>Eighth-grade students performing at the proficient level should be able to produce an effective response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should be organized, making use of techniques such as sequencing or a clearly marked beginning and ending, and it should make use of details and some elaboration to support and develop the main idea of the piece. Their writing should include precise language and some variety in sentence structure, and it may show analytical, evaluative, or creative thinking. The grammar, spelling, punctuation, and capitalization in the work should be accurate enough to communicate to a reader; there may be some errors, but these should not get in the way of meaning.</p>
<p>Grade 8 Advanced YYY</p>	<p><i>Eighth-grade students performing at the advanced level should be able to produce a fully developed response within the time allowed that shows a clear understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking and may make use of literary strategies to clarify a point. At the same time, the writing should be clearly organized, demonstrating precise word choice and varied sentence structure.</i></p> <p>Eighth-grade students performing at the advanced level should be able to produce an effective and fully developed response within the time allowed that shows a clear understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking, and should demonstrate precise word choice and varied sentence structure. Their work should include details and elaboration that support and develop the main idea of the piece, and it may make use of strategies such as analogies, illustrations, examples, anecdotes, or figurative language to clarify a point. At the same time, the writing should show that these students can keep their work clearly and consistently organized. Writing by eighth-grade students performing at the advanced level should contain few errors in grammar, spelling, punctuation, capitalization, and sentence structure. These writers should demonstrate good control of these elements and may use them for stylistic effect in their work.</p>

(continued)

Figure J-4 (continued)
Achievement-Level Descriptions for Writing

The following statements describe the kinds of things twelfth-grade students should be able to do in writing at each level of achievement. These statements should be interpreted with the constraints of the National Assessment of Educational Progress in mind. Student performances reported with respect to these descriptions are in response to two age-appropriate writing tasks completed within 25 minutes each. Students are not advised of the writing tasks in advance nor engaged in prewriting instruction and preparation; however, they are given a set of “ideas for planning and evaluating” their writing for the assessment. Although the writing NAEP cannot fully assess students’ abilities to produce a polished piece of writing, the results do provide valuable information about students’ abilities to generate writing in response to a variety of purposes, tasks, and audiences within a rather limited period of time.

<p>Grade 12 Basic YYY</p>	<p><i>Twelfth-grade students performing at the basic level should be able to produce a well-organized response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking, and it should include details that support and develop the main idea of the piece.</i></p> <p>Twelfth-grade students performing at the basic level should be able to produce an effective response within the time allowed that shows an understanding of both the writing task they have been assigned and the audience they are expected to address. Their writing should show some analytical, evaluative, or creative thinking. It should include details that support and develop the central idea of the piece, and it should be clearly organized, making use of techniques such as a consistency in topic or theme, sequencing, and a clear introduction and conclusion. The grammar, spelling, punctuation, and capitalization in these students’ work should be accurate enough to communicate to a reader; there may be some errors, but these should not get in the way of meaning.</p>
<p>Grade 12 Proficient YYY</p>	<p><i>Twelfth-grade students performing at the proficient level should be able to produce an effectively organized and fully developed response within the time allowed that uses analytical, evaluative, or creative thinking. Their writing should include details that support and develop the main idea of the piece, and it should show that these students are able to use precise language and variety in sentence structure to engage the audience they are expected to address.</i></p> <p>Twelfth-grade students performing at the proficient level should be able to produce an effective and fully developed response within the time allowed that uses analytical, evaluative, or creative thinking. Their writing should be organized effectively, and it should show that these students have a clear understanding of the writing task they have been assigned. It should be coherent, making use of techniques such as a consistent theme, sequencing, and a clear introduction and conclusion, and it should include details and elaboration that support and develop the main idea of the piece. The writing should show that these students are able to use precise language and variety in sentence structure to engage the audience they are expected to address. Writing by twelfth-grade students performing at the proficient level should contain few errors in grammar, spelling, punctuation, capitalization, and sentence structure. These writers should demonstrate a command of these elements and may use them for stylistic effect in their work.</p>

(continued)

Figure J-4 (continued)
Achievement-Level Descriptions for Writing

<p>Grade 12 Advanced YYY</p>	<p><i>Twelfth-grade students performing at the advanced level should be able to produce a mature and sophisticated response within the time allowed that uses analytical, evaluative, or creative thinking. Their writing should be detailed and fully developed, and it should show that these students are able to use literary strategies to develop their ideas. At the same time, the writing should be well crafted and coherent, and it should show that these students are able to engage the audience they are expected to address through rich and compelling language, precise word choice, and variety in sentence structure.</i></p> <p>Twelfth-grade students performing at the advanced level should be able to produce a mature and sophisticated response within the time allowed that uses analytical, evaluative, or creative thinking. Their writing should be fully developed, incorporating details and elaboration that support and extend the main idea of the piece. It should show that these students can use literary strategies anecdotes and repetition, for example, to develop their ideas. At the same time, the writing should be well crafted, organized, and coherent, and it should incorporate techniques such as a consistency in topic or theme, sequencing, and a clear introduction and conclusion. It should show that these writers can engage the audience they are expected to address through rich and compelling language, precise word choice, and variety in sentence structure. Writing by twelfth-grade students performing at the advanced level should contain few errors in grammar, spelling, punctuation, capitalization, and sentence structure. These writers should demonstrate a sophisticated command of these elements and may use them for stylistic effect in their work.</p>
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Figure J-5

*Meeting Participants, NAEP Civics Achievement Level Setting Pilot Study
St. Louis, Missouri, August 13–17, 1998*

Peggy Allan
Grade 8 Teacher
Greenville Junior High School
Greenville, IL 62246

Vicki Allen
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Penny Andrew
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Joe Andrews
Grade 12 General Public
Office of the Mayor
San Francisco, CA 94102

Toni Apoldo
Grade 4 Teacher
Central School
East Brunswick, NJ 08816

Susan Barrow
Grade 12 General Public
Former School Board Chair
Billings, MT 59102

Regina Bell
Grade 8 General Public
Educational Coordinator
Cox Communications
West Warwick, RI 02893

Michael Carroll
Grade 8 General Public
School Board Chair
Akeley, MN 56433

Mary Carter
Grade 8 Teacher
Alma Middle School
Alma, AR 72921

Susan Churchill
Grade 4 General Public
Anchorage Community YMCA
Anchorage, AK 99507

Colleen Clark-Sutton
Grade 12 Teacher
Garfield Heights High School
Garfield Heights, OH 44125

Susannah Jones Cleveland
Grade 12 Teacher
Prattville High School
Prattville, AL 36067

Frank Collins
Grade 12 General Public
Retired Vice President
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Hartford, CT 06108

Jose Colon
Grade 8 Teacher
Millikan Middle School
Sherman Oaks, CA 91423

Amy Dillon
Grade 12 Teacher
Wichita Northwest High School
Wichita, KS 67212

Ronda Ely
Grade 8 Teacher
North Davie Middle School
Mocksville, NC 27028

Gene Ford
Grade 4 Teacher
Sutterville Elementary
Sacramento, CA 95822

(continued)

Figure J-5 (continued)

*Meeting Participants, NAEP Civics Achievement Level Setting Pilot Study
St. Louis, Missouri, August 13–17, 1998*

Joshua Fradel
Grade 8 Teacher
Centreville Middle School
Centreville, MD 21617

John Hall
Grade 8 General Public
Town Manager
Town of St Johnsbury
St Johnsbury, VT 05819

Christine Hamilton
Grade 4 Teacher
Ottawa River Elementary
Toledo, OH 43611

Kathy Hand
Grade 8 Nonteacher
State Director
Center for Civic Education
Seattle, WA 98148

Craig Haugaard
Grade 12 General Public
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Beverly Hoffmaster
Grade 4 Teacher
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Kerry Horn
Grade 8 General Public
Minister, First Baptist Church
Covington, TX 76636

Denny Hurtado
Grade 8 Nonteacher
Office of Superintendent of Public Instruction
Olympia, WA 98504-7200

Myrna Jensen
Grade 8 Teacher
Service Center
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Barbara Jo Johnson
Grade 4 Teacher
Rolling Green School
Rockford, IL 61108

Stanley Keene
Grade 8 Teacher
Hopwood Junior High School
Saipan, MP 96950

Harriet Kopp
Grade 12 Teacher
Musselman High School
Gerrardstown, WV 25420

Kim Kozbial-Hess
Grade 4 Teacher
Toledo Public Schools
Toledo, OH 43608

Leslie Lee
Grade 8 Teacher
Hammocks Middle School
Miami, FL 33196

Hsien-Tung Liu
Grade 12 Nonteacher
Bloomsburg University
Bloomsburg, PA 17818

Garnet Lynch
Grade 4 Teacher
Whittier Elementary
Frederick, MD 21702

Ed Markarian
Grade 12 Teacher
Franklin High School
Los Angeles, CA 90042

Russell Maruna
Grade 8 Nonteacher
Cleveland City School District
Cleveland, OH 44114

(continued)

Figure J-5 (continued)

*Meeting Participants, NAEP Civics Achievement Level Setting Pilot Study
St. Louis, Missouri, August 13–17, 1998*

Phyllis Mattingly
Grade 8 General Public
McCauley & Mattingly Attorneys
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Eileen Sudock
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Gary Swalley
Grade 8 Teacher
Edwardsville Middle School
Edwardsville, IL 62025

Gwen Parks
Grade 12 Teacher
Newtown High School
Sandy Hook, CT 06482

Mary Talanay
Grade 4 Teacher
Chatsworth Park Elementary School
Chatsworth, CA 91311

Debbie Pascal
Grade 12 General Public
Jefferson County Chamber of Commerce
Mount Vernon, IL 62864

Barbara Tranquilla
Grade 12 Teacher
Miami Killian Senior
Miami, FL 33176

Mary Peschel
Grade 4 General Public
Administrator/Clerk/Treasurer
City of Schuyler
Schuyler, NE 68661

Lynne Unice
Grade 4 Teacher
Hammarkjold School
East Brunswick, NJ 08816

Robert Pickus
Grade 12 General Public
President, World Without War Council, Inc.
Berkeley, CA 94709

Debbie Waitekus
Grade 8 General Public
Past Member, Board of Education
Matteson, IL 60443

Jennifer Powell
Grade 8 Teacher
Brunswick Middle School
Brunswick, MD 21716

Elwood Williams
Grade 4 General Public
President, Broad Creek Civic League
Norfolk, VA 23523

Linda Richards
Grade 4 General Public
School Board President
Bradley, CA 93426

Jennifer Yoo
Grade 4 Teacher
Welby Way Elementary
Canoga Park, CA 91307

Robby Sauer
Grade 12 Teacher
Bliss School
Bliss, ID 83314

Figure J-6

*Meeting Participants, NAEP Writing Achievement Level Setting Pilot Study
St. Louis, Missouri, October 1–5, 1998*

Darrell Barrett
Grade 12 Teacher
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Paul Batesel
Grade 4 Teacher
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Figure J-6 (continued)
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St. Louis, Missouri, October 1–5, 1998

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(continued)

Figure J-6 (continued)

*Meeting Participants, NAEP Writing Achievement Level Setting Pilot Study
St. Louis, Missouri, October 1–5, 1998*

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Figure J-7
Meeting Participants, NAEP Civics Achievement Level Setting
St. Louis, Missouri, November 12–16, 1998

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Figure J-7 (continued)
Meeting Participants, NAEP Civics Achievement Level Setting
St. Louis, Missouri, November 12–16, 1998

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Figure J-7 (continued)
Meeting Participants, NAEP Civics Achievement Level Setting
St. Louis, Missouri, November 12–16, 1998

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Figure J-7 (continued)
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St. Louis, Missouri, November 12–16, 1998

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(continued)

Figure J-7 (continued)
Meeting Participants, NAEP Civics Achievement Level Setting
St. Louis, Missouri, November 12–16, 1998

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Figure J-8
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St. Louis, Missouri, December 9–13, 1998

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(continued)

Figure J-8 (continued)
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St. Louis, Missouri, December 9–13, 1998

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Figure J-8 (continued)
Meeting Participants, NAEP Writing Achievement Level Setting
St. Louis, Missouri, December 9–13, 1998

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(continued)

Figure J-8 (continued)
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St. Louis, Missouri, December 9–13, 1998

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Figure J-8 (continued)

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St. Louis, Missouri, December 9–13, 1998*

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Figure J-9

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Appendix K

PARTICIPANTS IN THE OBJECTIVES AND ITEM DEVELOPMENT PROCESS

The National Assessment of Educational Progress extends its deep appreciation to all those individuals who participated in the development of the framework, objectives, and items for the 1998 national assessment.

Figure K-1

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Figure K-2

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Figure K-3
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Figure K-5
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REFERENCES CITED IN TEXT

Abedi, J. (1996). The Interrater/Test Reliability System. (ITRS). *Multivariate Behavioral Research*, 31(4), 409–417.

Allen, N. L., & Donoghue, J. R. (1994, April). *Differential item functioning based on complex samples of dichotomous and polytomous items*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Allen, N. L., & Donoghue, J. R. (1996). Applying the Mantel-Haenszel procedure to complex samples of items. *Journal of Educational Measurement*, 33, 231–251.

Allen, N. L., Jenkins, F., Kulick, E., & Zelenak, C. A. (1997). *Technical report of the NAEP 1996 state assessment program in mathematics* (NCES 97–951). Washington, DC: National Center for Education Statistics.

Allen, N. L., Kline, D. L., & Zelenak, C. A. (1996). *The NAEP 1994 technical report* (NCES 97–897). Washington, DC: National Center for Education Statistics.

Allen, N. L., Mazzeo, J., Ip, E. H. S., Swinton, S., Isham, S. P., & Worthington, L. (1995). Data analysis and scaling for the 1994 Trial State Assessment in reading. In J. Mazzeo, N. L. Allen, & D. L. Kline, *Technical report of the NAEP 1994 Trial State Assessment in reading* (pp. 169–219). Washington, DC: National Center for Education Statistics.

Allen, N. L., Mazzeo, J., Isham, S. P., Fong, Y. F., & Bowker, D. W. (1994). Data analysis and scaling for the 1992 Trial State Assessment in reading. In E. G. Johnson, J. Mazzeo, & D. L. Kline, *Technical Report of the 1992 Trial State Assessment program in reading* (pp. 147–149). Washington, DC: National Center for Education Statistics.

Allen, N. L., Swinton, S., Isham, S. P., & Zelenak, C. A. (1998). *Technical report of the state assessment program in science*. Washington DC: National Center for Education Statistics.

American College Testing. (1993). *Setting achievement levels on the 1992 National Assessment of Educational Progress in mathematics, reading, and writing: A technical report on reliability and validity*. Iowa City, IA: Author.

American College Testing. (1998). *Developing achievement levels on the 1998 NAEP in civics: Field trial report*. Iowa City, IA: Author.

American College Testing. (1999a). *Developing achievement levels on the 1998 NAEP in civics: Pilot study report*. Iowa City, IA: Author.

American College Testing. (1999b). *Developing achievement levels on the 1998 NAEP in civics: Final report*. Iowa City, IA: Author.

American College Testing. (1999c). *Developing achievement levels on the 1998 NAEP in writing: Field trial report*. Iowa City, IA: Author.

American College Testing. (1999d). *Developing achievement levels on the 1998 NAEP in writing: Final report*. Iowa City, IA: Author.

- American College Testing. (1999e). *Developing achievement levels on the 1998 NAEP in writing: Pilot study report*. Iowa City, IA: Author.
- Andersen, E. B. (1980). Comparing latent distributions. *Psychometrika*, 45, 121–134.
- Angoff, W. H. (1971). Scales, norms, and equivalent scores. In R. L. Thorndike (Ed.), *Educational Measurement* (2nd ed., pp. 508–600). Washington DC: American Council on Education.
- Ballator, N., & Jerry, L. (1999a). *NAEP 1998 reading state report for [state]*, NCES–460. Washington, DC: National Center for Education Statistics.
- Ballator, N., & Jerry, L. (1999b). *NAEP 1998 writing state report for [state]*, NCES–460. Washington, DC: National Center for Education Statistics.
- Beaton, A. E., & Johnson, E. G. (1990). The average response method of scaling. *Journal of Educational Statistics*, 15, 9–38.
- Beaton, A. E., & Johnson, E. G. (1992). Overview of the scaling methodology used in the National Assessment. *Journal of Educational Measurement*, 26(2), 163–175.
- Beaton, A. E., & Zwick, R. (1990). *The effect of changes in the National Assessment: Disentangling the NAEP 1985-86 reading anomaly*. (No. 17–TR–21) Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.
- Benjamini, Y., & Hochberg, Y. (1994). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, Series B*, 57(1), 289–300.
- Birnbaum, A. (1968). Some latent trait models and their use in inferring an examinee's ability. In F. M. Lord & M. R. Novick, *Statistical theories of mental test scores*. Reading, MA: Addison-Wesley.
- Bock, R. D. (1972). Estimating item parameters and latent ability when responses are scored in two or more latent categories. *Psychometrika*, 37, 29–51.
- Bourque, M. L., Champagne, A. B., & Crissman, S. (1997). *NAEP 1996 science performance standards: Achievement results for the nation and the states*. Washington, DC: National Assessment Governing Board.
- Bourque, M. L., & Garrison, H. (1991). *The levels of mathematics achievement: Initial performance standards for the 1990 NAEP Mathematics Assessment (Vols. I & II)*. Washington, DC: National Assessment Governing Board.
- Broughman, S. P., & Colaciello, L.A. (1998). *Private school universe study, 1995-96*, (NCES 98-229), Washington, DC: National Center for Education Statistics.
- Calderone, J., King, L. M., & Horkay, N. (Eds.). (1997). *The NAEP guide: A description of the content and methods of the 1997 and 1998 assessments*, (NCES 97–990). Washington, DC: National Center for Education Statistics.
- Carlson, J. E. (1993). *Dimensionality of NAEP instruments that incorporate polytomously scored items*. Paper presented at the annual meeting of the American Educational Research Association, Atlanta, GA.

Carlson, J. E., & Jirele, T. (1992, April). *Dimensionality of 1990 NAEP mathematics data*. Paper presented at the meeting of the American Educational Research Association, San Francisco, CA.

Center for Civic Education. (1994). *National standards for civics and government*. Calabasas, CA: Author.

Center for Research on Evaluation, Standards, and Student Testing (CRESST). (1996). *Writing framework and specifications for the 1998 National Assessment of Educational Progress* (Contract RS89174001). Washington DC: National Assessment Governing Board.

Chang, H. H., Mazzeo, J., & Roussos, L. (1995). *Detecting DIF for polytomously scored items: An adaptation of the SIBTEST procedure*, (ETS Research Report RR-95-05). Princeton, NJ: Educational Testing Service.

Cizek, G. (1993). *Reactions to National Academy report: Setting performance standards for student achievement*. Washington, DC: National Assessment Governing Board.

Cochran, W. G. (1977). *Sampling techniques*. New York, NY: John Wiley & Sons.

Cohen, J. (1968). Weighted kappa: Nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin*, 70(4), 213–220.

Council of Chief State School Officers. (1996). *Civics framework for the 1998 National Assessment of Educational Progress*. Washington, DC: National Assessment Governing Board.

Curry, L. (1987, April). *Group decision process in setting cut-off scores*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm (with discussion). *Journal of the Royal Statistical Society, Series B*, 39, 1–38.

Donoghue, J. R. (1993). *An empirical examination of the IRT information in polytomously scored reading items*. (ETS Research Report RR-95-05). Princeton, NJ: Educational Testing Service.

Donoghue, J. R. (1995, April). *Assessing some of the measurement properties of longer reading blocks: An application of the bootstrap to structural equation models*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Donoghue, J. R. (1998a). *Detecting DIF for polytomously scored items: An adaptation of the SIBTEST procedure*, [computer program] Princeton, NJ: Educational Testing Service.

Donoghue, J. R. (1998b). *NAEP SIBTEST* [computer program]. Princeton, NJ: Educational Testing Service.

Donoghue, J. R. (2000) *On the derivation of an effect size measure for polytomous DIF* [draft manuscript]. Princeton, NJ: Educational Testing Service.

Donoghue, J. R., Holland, P. W., & Thayer, D. T. (1993). A Monte Carlo study of factors that affect the Mantel-Haenszel and standardization measures of differential item functioning. In P. W. Holland and H. Wainer (Eds.) *Differential item functioning* (pp. 137–166). Hillsdale, NJ: Erlbaum.

Donoghue, J. R. & Hombo, C. M. (June, 1999) *Some asymptotic results on the distribution of an IRT measure of item fit*. Paper presented at the annual meeting of the Psychometric Society, Lawrence, KS.

Donoghue, J. D. & Isham, S. P. (1998). A comparison of procedures to detect item parameter drift (with S. P.). *Applied Psychological Measurement*, 22, 33-51.

Donoghue, J. R., & Mazzeo, J. (1995). *Assessing some of the properties of longer blocks in the 1992 NAEP reading assessment*, (ETS Research Report RR-95-28). Princeton, NJ: Educational Testing Service.

Donahue, P. L., Voelkl, K. E., Campbell, J. R., & Mazzeo, J. (1999). *NAEP 1998 reading report card for the nation and the states*. (NCES 1999-500). Washington, DC: National Center for Education Statistics.

Dorans, N., & Kulick, E. (1986). Demonstrating the utility of the standardization approach to assessing unexpected differential item performance on the Scholastic Aptitude Test. *Journal of Educational Measurement*, 23, 355-368.

Educational Testing Service. (1992). *Innovations and ingenuity: A foundation for the future. Application for cooperative agreement for NAEP* (CFDA Number: 84.999E). Princeton, NJ: Author.

Educational Testing Service. (1987). *ETS standards of quality and fairness*. Princeton, NJ: Author.

Engelen, R. J. H. (1987). *Semiparametric estimation in the Rasch model*. Research Report 87-1. Twente, the Netherlands: Department of Education, University of Twente.

Fitzpatrick, A. R. (1989). Social influences in standard-setting: The effects of social interaction on group judgments. *Review of Educational Research*, 59, 315-328.

Friedman, C. B., & Ho, K. T. (1990, April). *Interjudge consensus and intrajudge consistency: Is it possible to have both on standard setting?* Paper presented at the annual meeting of the National Council for Measurement in Education, Boston, MA.

Grant, E. L. (1964). *Statistical quality control*. Washington, DC: McGraw Hill, 211-212.

Gray, L. M., Krenzke, T., & Wallace, L. (2000). *Sampling activities and field operations for 1998 NAEP*. Rockville, MD: Westat.

Greenwald, E. A., Persky, H. R., Campbell, J. R., & Mazzeo, J. (1999). *NAEP 1998 writing report card for the nation and the states*. (NCES 1999-462). Washington, DC: National Center for Education Statistics.

Habing, B. & Donoghue, J. R. (in press). Local dependence assessment for exams with polytomous items and incomplete item-examinee layouts. *Journal of Educational and Behavioral Statistics*.

Hambleton, R. K., & Bourque, M. L. (1991). *The levels of mathematics achievement. Vol. II, technical report*. Washington, DC: National Assessment Governing Board.

Hochberg, Y. (1988). A sharper Bonferroni procedure for multiple tests of significance. *Biometrika*, 75, 800-802.

Hooijtink, H. (1991). *Estimating the parameters of linear models with a latent dependent variable by nonparametric maximum likelihood*. Research Bulletin HB-91-1040-EX. Groningen, The Netherlands: Psychological Institute, University of Groningen.

Holland, P. W., & Thayer, D. T. (1988). Differential item performance and the Mantel-Haenszel procedure. In H. Wainer & H. I. Braun (Eds.), *Test validity*. Hillsdale, NJ: Erlbaum.

Hombo, C. M., & Donoghue, J. R. (2000). *Some properties of the distribution of an IRT measure of item fit*. Paper presented at the annual meeting of the Psychometric Society, Vancouver, British Columbia, Canada.

Huynh, H. (1994). *Some technical aspects of standard setting*. Paper presented at the Joint Conference on Standard Setting for Large-Scale Assessments. Washington, D.C.

Huynh, H. (1998). On score locations of binary and partial credit items and their applications to item mapping and criterion-referenced interpretation. *Journal of Educational and Behavioral Statistics*, 23(1), 38–58.

Improving America's Schools Act of 1994. Pub. L. No. 103–382, Title I, Part A, 108 Stat. 3519 (1994).

Jenkins, F., Kulick, E., Kaplan, B. A., Wang, S., Qian, J., & Wang, X. (1997). Data analysis and scaling for the 1996 state assessment program in mathematics. In N. L. Allen, F. Jenkins, E. Kulick, & C. A. Zelenak. (1997). *Technical report of the NAEP 1996 state assessment program in mathematics* (NCES 97–951). Washington, DC: National Center for Education Statistics.

Johnson, E. G. (1989). Considerations and techniques for the analysis of NAEP data. *Journal of Educational Statistics*, 14(4), 303–334.

Johnson, E. G., & Carlson, J. E. (1994). *The NAEP 1992 technical report*. Washington, DC: National Center for Education Statistics.

Johnson, E. G., & King, B. F. (1987). Generalized variance functions for a complex sample survey. *Journal of Official Statistics*, 3, 235–250.

Johnson, E. G., & Rust, K. F. (1992). Population inferences and variance estimation for NAEP data. *Journal of Educational Statistics*, 17, 175–190.

Johnson, E. G. & Rust, K. F. (1993). Effective degrees of freedom for variance estimates from a complex sample survey. *American Statistical Association 1993 Proceedings: Survey research methods section*, 863–866.

Kane, M. (1993). *Comments on the NAE evaluation of the NAGB achievement levels*. Washington, DC: National Assessment Governing Board.

Kaplan, B. A., Beaton, A. E., Johnson, E. G., & Johnson, J. R. (1988). *National Assessment of Educational Progress: 1986 bridge studies*. Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

Kaplan, B. A., & Johnson, E. G. (1992, April). *Reliability of professionally scored data: NAEP related issues*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Kaplan, D. (1995). The impact of BIB spiraling-induced missing data patterns on goodness-of-fit tests in factor analysis. *Journal of Educational and Behavioral Statistics*, 20, 69–82.

Keyfitz, N. (1951). Sampling with probability proportional to size; adjustment for changes in probabilities. *Journal of the American Statistical Association*, 46, 105–109.

Kish, L. (1965). *Survey Sampling*. New York: John Wiley & Sons.

Kish, L., & Frankel, M. R. (1974). Inference from complex samples. *Journal of the Royal Statistical Society, Series B*, 36, 1–22.

Krewski, D., & Rao, J. N. K. (1981). Inference from stratified samples: Properties of linearization, jackknife and balanced repeated replication. *Annals of Statistics*, 9, 1010–1019.

Laird, N. M. (1978). Nonparametric maximum likelihood estimation of a mixing distribution. *Journal of the American Statistical Association*, 73, 805–811.

Langer, J. A. (1989). *The process of understanding literature. Report Series 2.1*. Albany, NY: Center for the Learning and Teaching of Literature, State University of New York.

Langer, J. A. (1990). The process of understanding: Reading for literary and informative purposes. *Research in the Teaching of English*, 24(3), 229–260.

Lindsey, B., Clogg, C. C., & Grego, J. (1991). Semiparametric estimation in the Rasch model and related exponential response models, including a simple latent class model for item analysis. *Journal of the American Statistical Association*, 86, 96–107.

Little, R. J. A., & Rubin, D. B. (1983). On jointly estimating parameters and missing data. *American Statistician*, 37, 218–220.

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York, NY: John Wiley & Sons.

Lord, F. M. (1980). *Applications of item response theory to practical testing problems*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Lutkus, A. D., Weiss, A. R., Campbell, J. R., Mazzeo, J., & Lazer, S. (1999). *NAEP 1998 civics report card for the nation*. (NCES 2000–457). Washington, DC: National Center for Education Statistics.

Mantel, N. (1963). Chi-square tests with one degree of freedom: Extensions of the Mantel-Haenszel procedure. *Journal of the American Statistical Association*, 58, 690–700.

Mantel N., & Haenszel, W. M. (1959). Statistical aspects of the analysis of data from retrospective studies of disease. *Journal of the National Cancer Institute*, 22, 719–748.

Mazzeo, J. (1991). Data analysis and scaling. In S. L. Koffler, *The technical report of NAEP's 1990 Trial State Assessment program* (pp. 138–182) [No. ST–21–01]. Washington, DC: National Center for Education Statistics.

Mazzeo, J., Allen, N. L., & Kline, D. L. (1995). *Technical report of the NAEP 1994 Trial State Assessment program in reading*. Washington, DC: National Center for Education Statistics.

Mazzeo, J., Carlson, J.E., Voelkl, K.E., & Lutkus, A.D. (1999). *Increasing the participation of special needs students in NAEP: A report on 1996 NAEP research activities*. (NCES 2000-473). Washington, DC: National Center for Education Statistics.

Mazzeo, J., Chang, H., Kulick, E., Fong, Y. F., & Grima, A. (1993). Data analysis and scaling for the 1992 Trial State Assessment. In E. G. Johnson, J. Mazzeo, & D. L. Kline, *Technical report of the NAEP 1992 Trial State Assessment program in mathematics* (NCES 23-ST05). Washington, DC: National Center for Education Statistics.

Mazzeo, J., Johnson, E. G., Bowker, D., & Fong, Y. F. (1992). *The use of collateral information in proficiency estimation for the Trial State Assessment*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Mislevy, R. J. (1985). Estimation of latent group effects. *Journal of the American Statistical Association*, 80, 993–997.

Mislevy, R. J. (1990). Scaling procedures. In E. G. Johnson and R. Zwick, *Focusing the new design: The NAEP 1988 technical report* (pp. 229–250) [No. 19-TR-20]. Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

Mislevy, R. J. (1991). Randomization-based inference about latent variables from complex samples. *Psychometrika*, 56, 177–196.

Mislevy, R. J., Beaton, A. E., Kaplan, B., & Sheehan, K. M. (1992). Estimating population characteristics from sparse matrix samples of item responses. *Journal of Educational Measurement*, 29(2), 133–161.

Mislevy, R. J., & Bock, R. D. (1982). *BILOG: Item analysis and test scoring with binary logistic models* [Computer program]. Mooresville, IN: Scientific Software.

Mislevy, R. J., Johnson, E. G., & Muraki, E. (1992). Scaling procedures in NAEP. *Journal of Educational Statistics*, 17(2), 131–154.

Mislevy, R. J., & Sheehan, K. M. (1987). Marginal estimation procedures. In A. E. Beaton, *Implementing the new design: The NAEP 1983-84 technical report*, [No. 15-TR-20] (pp. 293–360). Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

Mislevy, R. J., & Stocking, M. L. (1989). A consumer's guide to LOGIST and BILOG. *Applied Psychological Measurement*, 13(1), 57–75.

Mislevy, R. J., & Wu, P. K. (1988). *Inferring examinee ability when some item responses are missing* (ETS Research Report RR-88-48-ONR). Princeton, NJ: Educational Testing Service.

Muraki, E. (1992). A generalized partial credit model: Application of an EM algorithm. *Applied Psychological Measurement*, 16(2), 159–176.

Muraki, E. (1993). Information functions of the generalized partial credit model. *Applied Psychological Measurement*, 17(4), 351–362.

Muraki, E., & Bock, R. D. (1991). *PARSCALE: Parameter scaling of rating data*. Chicago, IL: Scientific Software, Inc.

- Muraki, E., & Bock, R. D. (1997). *PARSCALE: IRT item analysis and test scoring for rating-scale data*. Chicago, IL: Scientific Software International.
- Muthén, B. (1991, November). *Issues in using NAEP mathematics items to study achievement dimensionality, within-grade differences, and across-grade growth*. Report presented to the Design and Analysis Committee of the National Assessment of Educational Progress, Washington, DC.
- National Academy of Education. (1992). *Assessing student achievement in the states. The first report of the National Academy of Education Panel on the evaluation of the NAEP Trial State Assessment: 1990 Trial State Assessment*. Stanford, CA: Author.
- National Academy of Education. (1993a). *Setting performance standards for student achievement*. Stanford, CA: Author.
- National Academy of Education. (1993b). *The Trial State Assessment: prospects and realities*. Stanford, CA: Author.
- National Academy of Sciences. (1998). *Grading the nation's report card: Evaluating NAEP and transforming the Assessment of Educational Progress*. Washington, DC: Author.
- National Assessment Governing Board. (1989). *Setting achievement goals on the National Assessment of Educational Progress: A draft policy statement*. Washington, DC: Author.
- National Assessment Governing Board. (1990). *Reading framework for the National Assessment of Educational Progress, 1992-1998*. Washington, DC: Author.
- National Assessment Governing Board. (1996a). *Civics framework for the 1998 National Assessment of Educational Progress*. Washington, DC: Author.
- National Assessment Governing Board. (1996b). *Writing framework and specifications for the 1998 National Assessment of Educational Progress, 1992-1998*. Washington, DC: Author.
- National Assessment of Educational Progress. (1996). *The NAEP guide: A description of the content and methods of the 1994 and 1996 assessments*. Washington, DC: National Center for Education Statistics.
- National Assessment of Educational Progress Improvement Act of 1988. Pub L. 100-297, U.S.C.A. § 1221 *et seq.* (1988).
- National Computer Systems. (1998). *1998 NAEP Assessment: Report of processing and professional scoring activities*. Iowa City, IA: Author.
- Orlando, M. & Thissen, D. (2000). Likelihood-based item-fit indices for dichotomous item response theory models. *Applied Psychological Measurement*, 24, 50-64.
- Petersen, N. (1988). *DIF procedures for use in statistical analysis*. Internal memorandum.
- Rock, D. A. (1991, November). *Subscale dimensionality*. Paper presented at the meeting of the Design and Analysis Committee of the National Assessment of Educational Progress, Washington, DC.
- Rogers, A. M., Kokolis, G. A., Stoeckel, J. J., & Kline, D. L. (2000). *National Assessment of Educational Progress: 1998 civics assessment secondary-use data files data companion*. Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

Rogers, A. M., Kokolis, G. A., Stoeckel, J. J., & Kline, D. L. (2000). *National Assessment of Educational Progress: 1998 writing assessment secondary-use data files data companion*. Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

Rogers, A. M., Kokolis, G. A., Stoeckel, J. J., & Kline, D. L. (2000). *National Assessment of Educational Progress: 1998 reading assessment secondary-use data files data companion*. Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.

Roussos, L., & Stout, W. (1996). A multidimensionality-based DIF analysis paradigm. *Applied Psychological Measurement*, 20(4), 355-71.

Roussos, L. A., Stout, W. F., & Marden, J. I. (1998). Using new proximity measures with hierarchical cluster analysis to detect multidimensionality. *Journal of Educational Measurement*, 35, 1-30.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York, NY: John Wiley & Sons.

Rubin, D. B. (1991). EM and beyond. *Psychometrika*, 56, 241–254.

Rust, K. (1985). Variance estimation for complex estimators in sample surveys. *Journal of Official Statistics*, 1(4), 381–397.

Rust, K. F., Bethel, J., Burke, J., & Hansen, M. H. (1990). *The 1988 National Assessment of Educational Progress: Sampling and weighting procedures, final report*. Rockville, MD: Westat.

Rust, K. F., Burke, J., & Fahimi, M. (1992). *1990 National Assessment of Educational Progress sampling and weighting procedures, part 2: National assessment, final report*. Rockville, MD: Westat

Rust, K. F., & Johnson, E. G. (1992). Sampling and weighting in the national assessment. *Journal of Educational Statistics*, 17(2), 111–129.

Samejima, F. (1969). Estimation of latent ability using a response pattern of graded scores. *Psychometrika*, 34(4), 129–301.

Satterthwaite, F. E. (1941). Synthesis of variance. *Psychometrika*, 6, 309–316.

Shaffer, J. P. (1994). *Multiple hypothesis testing: A review* (Tech. Rep. No. 23). Research Triangle Park, NC: National Institute of Statistical Sciences.

Shealy, R., & Stout, W. (1993). A model-based standardization approach that separates true bias/DIF from group ability differences and detects test bias/DIF as well as item bias/DIF. *Psychometrika*, 58, 159–194.

Sheehan, K. M. (1985). *MGROUP: Estimation of group effects in multivariate models* [Computer program]. Princeton, NJ: Educational Testing Service.

Smith, R. L., & Smith, J. K. (1988). Differential use of item information by judges using Angoff and Nedelsky procedures. *Journal of Educational Measurement*, 25, 259–274.

Stone, C. A., Ankenmann, R. D., Lane, S., & Liu, M. (1993, April). *Scaling QUASAR's performance assessments*. Paper presented at the annual meeting of the American Educational Research Association, Atlanta, GA.

- Stone, C. A., Mislevy, R. J., & Mazzeo, J. (1994, April). *Misclassification error and goodness-of-fit in IRT models*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Tanner, M., & Wong, W. (1987). The calculation of posterior distributions by data augmentation (with discussion). *Journal of the American Statistical Association*, 82, 528–550.
- Thomas, N. (1993a). Asymptotic corrections for multivariate posterior moments with factored likelihood functions. *Journal of Computational and Graphical Statistics*, 2, 309–322.
- Thomas, N. (1993b). *The E-step of the MGROUP EM algorithm*. (Program Statistics Research, ETS Research Report RR-95-05). Princeton, NJ: Educational Testing Service.
- Thomas, N. (1994). *CGROUP and BGROUP: Modifications of the MGROUP program to estimate group effects in multivariate models* [Computer programs]. Princeton, NJ: Educational Testing Service.
- Tukey, J. W. (1977). *Exploratory data analysis*. Reading, MA: Addison-Wesley Publishing Company.
- Wainer, H. (1974). The suspended rootogram and other visual displays: An empirical validation. *American Statistician*, 28(4), 143–145.
- Wallace, L., & Rust, K. F. (1999). Sample design. In N. L. Allen, J. E. Carlson, & C. A. Zelenak. *The NAEP 1996 technical report* (NCES 1999–452). Washington, DC: National Center for Education Statistics.
- Weiss, A. R., Lutkus A. D., Grigg, W. S., & Niemi, R. G. (2000). *The next generation of citizens: NAEP trends in civics, 1988 to 1998* (NCES 2000-494). Washington, DC: National Center for Education Statistics.
- Westat. (1998). *Report on data collection activities for all states*. Rockville, MD: Author.
- Williams, V. S. L., Jones, L. V., & Tukey, J. W. (1999). Controlling error in multiple comparisons, with examples from state-to-state differences in educational achievement. *Journal of Educational and Behavioral Statistics*, 24(1), 42–69.
- Wingersky, M., Kaplan, B. A., & Beaton, A. E. (1987). Joint estimation procedures. In A. E. Beaton, *Implementing the new design: The NAEP 1983-84 technical report* (pp. 285–292). (No. 15–TR–20) Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.
- Wolter, K. M. (1985). *Introduction to variance estimation*. New York, NY: John Wiley & Sons.
- Yamamoto, K. (1988). Science data analysis. In A. E. Beaton, *Expanding the new design: The NAEP 1985-86 technical report* (pp. 243–255). (No. 17–TR–20) Princeton, NJ: Educational Testing Service, National Assessment of Educational Progress.
- Yamamoto, K., & Mazzeo, J. (1992). Item response theory scale linking in NAEP. *Journal of Educational Statistics*, 17(2), 155–173.
- Yen, W. M. (1993). Scaling performance assessments: Strategies for managing local item dependence. *Journal of Educational Measurement*, 30, 187-213.

Zhang, J. & Stout, W. (1999). The theoretical DETECT index of dimensionality and its application to approximate simple structure. *Psychometrika*, *64*, 213-249.

Zieky, M. (1993). Practical questions in the use of DIF statistics. In P. W. Holland & H. Wainer (Eds.), *Differential item functioning*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Zwick, R. (1986). *Assessment of the dimensionality of NAEP year 15 reading data*. (ETS Research Report No. 86-4). Princeton, NJ: Educational Testing Service.

Zwick, R. (1987). Assessment of the dimensionality of NAEP year 15 reading data. *Journal of Educational Measurement*, *24*(4), 293-308.

Zwick, R. (1988). *Professionally scored items*. Technical memorandum.

Zwick, R., Donoghue, J. R., & Grima, A. (1993). Assessment of differential item functioning for performance tasks. *Journal of Educational Measurement*, *30*, 233-251.

Zwick, R., & Grima, A. (1991). *Policy for differential item functioning (DIF) analysis in NAEP*. Technical memorandum.

Zwinderman, A. H. (1991). Logistic regression Rasch models. *Psychometrika*, *56*, 589-600.

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