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Working Paper Series

Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research

Working Paper No. 97-36 October 1997

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October 1997

Foreword

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Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research

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Prepared for the National Center for Education Statistics under contract RN94094001 with the National Opinion Research Center. The views expressed are those of the authors; no endorsement by the government should be inferred.

October 1997

Preface

The **Early Childhood Longitudinal Study (ECLS)** is a study that will focus on children's early school experiences beginning with kindergarten. The ECLS is being developed under the sponsorship of the U.S. Department of Education, National Center for Education Statistics (NCES), with additional financial and technical support provided by the Administration of Children, Youth and Families, U.S. Department of Education's Office of Special Education Programs and Office of Indian Education, and the U.S. Department of Agriculture's Food and Consumer Service. Approximately 23,000 children throughout the country will be selected to participate as they enter kindergarten and will be followed as they move from kindergarten through 5th grade. Base-year data will be collected in the fall of 1998, with additional spring follow-up data collections scheduled for 1999 through 2004. Information about children's neighborhoods, families, schools, and classrooms will be collected from parents, teachers, and school administrators.

Because of the magnitude and complexity of the ECLS, NCES has set aside an extended period of time for planning, designing, and testing the instruments and procedures that will be used in the main study. NCES and its contractor, the National Opinion Research Center, are using this time to examine a variety of issues pertaining to the sampling and assessment of young children and their environments. The design phase of the study will culminate in a large-scale field test during the 1996-97 school year.

NCES has sought the participation and input of many individuals and organizations throughout the design phase of the ECLS. The participation of these individuals and organizations has resulted in a set of design papers that identify policy and research questions in early education, map the content of the ECLS study instruments to these questions, explore and evaluate different methods for assessing the development of children and for capturing data about their homes, schools, and classrooms.

This paper is one of several that were prepared in support of ECLS design efforts. While the information and recommendations found in this paper have contributed to the design of the ECLS, specific methods and procedures may or may not actually be incorporated into the final ECLS design. It is our hope that the information found in this paper not only will provide background for the development of the ECLS, but will be useful to researchers developing studies of young children and their education experiences.

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BACKGROUND

This paper is an outgrowth of planning for the Early Childhood Longitudinal Study (ECLS). ECLS is a study of the National Center for Education Statistics (NCES) being conducted by the National Opinion Research Center (NORC) and its subcontractors. Approximately 23,000 children throughout the country will be selected to participate as they enter kindergarten and will be followed as they move from kindergarten through fifth grade. Because of their importance in influencing children's school outcomes, the environments in which children live and learn will be studied. NORC will collect extensive information about the children's neighborhoods, families, schools, and classrooms from parents, teachers, school administrators, and the children themselves. The programs children experience before entering kindergarten are also an important influence in their growth and development through the elementary school years.

As part of the early ECLS planning process, we considered the possibility of assessing the program environments of Head Start children before they entered the ECLS kindergartens. We reviewed selected large-scale studies of Head Start, Chapter 1, child care, and other preschool settings to ascertain the important dimensions of children's program experience and to recommend ways of measuring those dimensions. NCES then commissioned this review to provide background information for researchers conducting longitudinal studies who may be interested in assessing children's program experiences in a variety of prekindergarten settings.

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I. INTRODUCTION

Children do not grow up in isolation. Before they enter school, their growth and development are influenced by the nurturance of their family relationships (Laosa 1984; Powell 1989; and Scott-Jones 1984), the economic resources of their neighborhoods (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993), and the quality of the out-of-home programs and care arrangements they experience (Hayes, Palmer, and Zaslow 1990). As children age and begin to spend more and more time outside of the family environment, the predominant influence of the family begins to wane, and the influence of neighborhood and program environments gains in importance (Cochran and Riley 1990). By the time children reach age 4, approximately 50 percent attend formal center-based programs for at least a portion of the day (West, Hausken, and Collins 1993). Of this group, almost 750,000 attend Head Start for one or more years before entering kindergarten.

As preschool, child care, Head Start, and other early education programs become increasingly important in the lives of children and their families, policymakers and researchers look for ways to assess the dimensions of program experiences and relate them to children's growth and development. The purpose of this paper is to review dimensions and measures of early childhood program environments that could be used in studies of preschool program effects on children's development. In Chapter II, we define the important dimensions of program environments, drawing largely from research on early care and education program quality and from Head Start practices as reflected in the Head Start Performance Standards (U.S. Department of Health and Human Services 1984) and performance measures (Ellsworth Associates 1995). In addition, Chapter II describes existing measures. In Chapter III, we summarize findings from the 11 studies in which these measures have been used and suggest implications for future research. Our review focuses on large-scale studies of Head Start and related early childhood programs that have used classroom observation instruments

and/or surveys to assess dimensions of program quality and were conducted within the past seven years (see Appendix A). Chapter IV presents our recommendations for measures to use in future research.

Chapters II and III largely draw upon the same literature. In Chapter II, our focus is on conceptualizing the major dimensions of early childhood program environments and describing instruments used for assessing those dimensions. In Chapter III, we summarize key findings relating program dimensions to children's development and well-being and use these findings to suggest strategies for conducting future research, in terms of both conceptual focus and methodological approaches.

II. DIMENSIONS AND MEASURES OF PROGRAM ENVIRONMENTS

Hundreds of variables have been identified in past efforts to measure early childhood program environments. To provide a conceptual organization of the variables, we discuss five dimensions commonly used to describe features of the program environment for children enrolled in early childhood programs: (1) classroom dynamics, (2) classroom structure, (3) classroom staff characteristics, (4) administration and support services, and (5) parent involvement. In this chapter, we describe these dimensions and the major instruments used for measuring their characteristics.

In seeking precedents for conceptualizing the dimensions of program environments, we examined the literature on program quality. Quality typically is conceptualized as the features of children's environments and experiences that are presumed to be beneficial to their well-being. Extensive research has investigated the extent to which features of program environments are empirically associated with aspects of children's growth and development (see, for example, reviews by Hayes et al. 1990; Howes 1988, and 1990; and Phillips 1987). On the basis of a blend of research and practice, the National Association for the Education of Young Children (NAEYC) has developed detailed descriptions of the elements of quality in what it refers to as "developmentally appropriate practice" (Bredekamp 1987). In developmentally appropriate programs, caregivers encourage children to be actively engaged in a variety of activities; have frequent, positive interactions with children that include smiling, touching, holding, and speaking at children's eye level; promptly respond to children's questions or requests; and encourage children to talk about their experiences, feelings, and ideas. Caregivers also listen attentively; ask open-ended questions and extend children's actions and verbalizations with more complex ideas or materials; interact with children individually and in small groups, instead of exclusively with the class as a whole; use positive guidance techniques; and encourage appropriate independence.

In addition to teacher or caregiver behaviors, which form the core of the dynamics of children's classroom experiences, definitions of quality often include structural features of the program (such as classroom structure and safety features), program administration, and supportive services (Ferrar 1996). No clear agreement exists, however, on how to categorize the large number of environmental variables used to define dimensions of quality and what factors to include in each dimension. In part, disagreement stems from different perceptions about whether a variable is essential to a quality environment that promotes optimal child development or is correlated with quality but is not an essential ingredient.

Howes (1992) views quality of program as one of three broad sets of variables required for understanding characteristics of child care, including preschool programs. (The other two are child care history, and the nature and form of the child care setting--for example, informal or formal, for-profit or nonprofit.) For Howes, quality variables fall into three categories: structure, process, and practice (or curriculum). Harms (1992) defines two major categories of early childhood program variables: (1) administration, and (2) children's program functions. Administration includes personnel, program resources, and management. Children's program functions include structural variables (space, materials, people, and recurring patterns) and processes or interactions.

Layzer, Goodson, and Moss (1993) define quality in terms of three sets of classroom processes: (1) pattern and content of activities and groups across the day; (2) behavior and interactions of teaching staff; and (3) behavior and interactions of children. These authors consider other program elements as potential predictors of quality. Thus, whereas many researchers consider such factors as child-staff ratio or teacher experience to be aspects of quality, Layzer et al. classify these factors (which are primarily characteristics of the classroom, the program, and the staff) as program elements to be understood because they may strongly influence the quality reflected in classroom processes. Love, Ryer, and Faddis (1992) also view quality elements as classroom-based but include structural variables

(such as group size and child-staff ratio), along with classroom dynamics, children's behavior, and the behavior of caregivers. They view other program variables (such as staff qualifications, child turnover, program auspice, and parent involvement) as contextual factors that may influence classroom quality.

Phillips (1987), on the other hand, argues that quality is a configuration of ingredients that include child-staff ratios, staff training, and parent participation. Phillips and Howes (1987) note that quality dimensions include (1) structural aspects, such as group composition and staff qualifications; (2) dynamic aspects of children's daily experience; and (3) contextual aspects, such as type of setting and staff stability. Similarly, in developing definitions and measures of quality for the Expanded Child Care Options (ECCO) study, Ferrar (1996) takes a broad view of quality as encompassing four domains: (1) the classroom (including child and adult interactions, physical environment and materials, developmentally appropriate practices, and structural features), (2) the program's supportive services (including health, mental health, nutrition, social services, and parent involvement), (3) program administration (staff qualifications, group size and ratio, planning and evaluation, personnel practices, and continuity of care), and (4) safety (facilities, outdoor play space, and safety procedures).

The two common features of these conceptualizations of program environments are (1) the distinction between the dynamic (interactional) and structural features of classrooms and (2) the acknowledgment that the larger program context or characteristics found outside the classroom are important determinants of the quality of children's classroom experience. Therefore, we include classroom dynamics and structure as the first two program environment dimensions. Consistent with the research literature, we distinguish three additional dimensions of the program environment: (1) classroom staff characteristics, (2) administration and support services, and (3) parent involvement. Table II.1 summarizes the classroom and program variables that we discuss under each of the five dimensions.

TABLE II.1

SUMMARY OF VARIABLES MEASURING EARLY CHILDHOOD CLASSROOM AND PROGRAM ENVIRONMENTS

Classroom Dynamics	Classroom Structure	Staff Characteristics	Administration and Support Services	Parent Involvement
Interactions Language reasoning experiences Social development Teacher-child interactions Child-child interactions Teacher responsiveness to children Individualization Caregiver behaviors (positive relationships, punitiveness, detachment, permissiveness, prosocial interaction) **Curriculum and Activities** Fine and gross motor activities Creative activities Support for variety of learning experiences Encouragement of active involvement of children Instructional practices (developmental appropriateness) Type and frequency of activities Child-initiated activities **Materials** Learning environment Play materials Concrete materials	**Physical Space** Square footage Provision of private, comfortable areas for children Child-sized facilities Space for group activities Space accessible to children with special needs Classroom furnishings Child personal-care routines Safety and health features Adult needs (separate space for adults, professional library for staff) **Stability of Enrollment** Number of children entering or leaving program Number of vacancies Length of time to fill vacancies Absentee rate **Organization of Caregivers and Children in the Classroom** Program size Classroom size Child-staff ratio Groupings of children Number of children, by age Number of staff, by role Number of volunteers or aides	**Educational Attainment** Degrees attained Receipt of Child Development Associate credentials Training in child development Other relevant course work **Development and Training Opportunities and Participation** In-service training Outside workshops and classes **Experience** Number of years of teaching experience Number of years of early childhood program experience Number of years in current program Other positions held **Salaries and Benefits** Opportunities for advancement Wages of classroom staff Range of benefits **Turnover Rate** Classroom staff turnover rate Time required to fill openings **Professionalism** Career paths Staff input--hiring decisions Teaching approach/philosophy Leadership ability Professional satisfaction **Demographics** Gender Race Racial/ethnic match between staff and children and between staff and community	**Director/Administrator Qualifications** Educational attainment/degrees Prior experience in early child care and education Prior experience in nonprofit organization management Relevant training courses **Staff Coordination and Assessment** Administrative leadership and philosophy Staff satisfaction Staff input--program decisions Staff meetings Staff evaluations Staff knowledge of personnel policies and procedures **Program Characteristics** Auspice State licensing status Sponsorship NAEYC accreditation Program goals/philosophy **Program Schedule** Hours per day Days per week Weeks per year **Financial Capacity** Revenues and revenue sources In-kind donations Total cost per child Parental fees Volunteer assistance **Supportive Services for Children/Families** Health, mental health, and dental care services Maintenance of health records Case management/monitoring Community agency referrals Community agency collaboration	**Parent Participation in Classroom** Volunteering Classroom visiting **Parent Involvement in Parent-Education Activities** Participation in education programs, workshops, and counseling services Home visits by staff **Parent Involvement in Program Decision Making** Participation on program committees **Parent Interaction with Other Parents** Supportive relationships among parents **Parent Approach to Child Development in the Home** Parent-child interactions Developmentally appropriate activities and materials Parenting skills and disciplinary style Parent attitudes toward and expectations of children **Parent Interaction with Staff and Community Members** Frequency of staff-parent interactions Frequency of teacher-parent meetings Case management techniques Parent-teacher relationship Existence of open-door visitation policy Relationship of teacher values and practices to parent values and practices Involvement with individuals and organizations in the community

NAEYC = National Association for the Education of Young Children.

A. CLASSROOM DYNAMICS

The dynamics of the classroom environment describe the processes through which children learn and interact on a daily basis. These processes include the interactions children have with adults and with each other, as well as the interactions among adults. After discussing the attributes of classroom dynamics, we review commonly used instruments for measuring them.

1. Attributes of Classroom Dynamics

By definition, classroom dynamics comprise all the interactions of children and adults. Because of the importance of teaching strategies and curriculum focus for children's development (Burts, Hart, Charlesworth, and Kirk 1990; and Marcon 1994), we believe it is useful to separate out those teacher-child interactions that are used to characterize "teaching." We refer to these as program activities. We also include classroom materials as a component of dynamics, because how children interact with materials and how teachers use them in their instruction are more important for children's development than are the physical attributes of the materials.

Therefore, we characterize classroom dynamics by focusing on three attributes of the classroom environment: (1) interactions, (2) curriculum and activities, and (3) materials that caregivers and children use. Classroom interactions include the manner in which teachers and caregivers interact with children and how children interact with each other. Specifically, interactions encompass the relationship between children and teachers, the level of direction teachers provide and initiative children take, teacher acceptance of children, the level of teacher feedback, the relationships among children, and the level of child participation and responsibility in classroom activities. Interactions also include the informal assessments teachers use to monitor their classrooms' dynamics and to make adjustments to accommodate children's needs.

Some writers distinguish classroom practices, or curriculum, from other features of dynamics (see, for example, Howes 1992); however, we include curriculum practices in this dimension because

they encompass many of the dynamics of caregiver-child interactions. Thus, another important attribute of classroom dynamics is the classroom activities that constitute developmentally appropriate or inappropriate practices. Important aspects of classroom activities include the balance between instructional and play-oriented activities, the balance between group and individual activities, the level of fine and gross motor activities in which children engage, the nature of activities supporting social and cognitive development, and the degree to which the activities are well planned and organized. The materials with which children interact in their learning environment can be described in terms of their appropriateness for the developmental level of children in the classroom.

2. Instruments for Measuring Classroom Dynamics

The available instruments we describe measure different aspects of classroom dynamics; provide different techniques for describing, coding, and classifying this important feature of the program environment; and have varying levels of precision in measuring classroom dynamics. The ease of training field staff to use the instruments also varies considerably. Classroom dynamics is the one dimension of the five we discuss that requires direct observation. (Although some studies have attempted to use survey methods, these are unsatisfactory for capturing the dynamics of classroom interactions most likely to enhance children's development.)

In studies examining the quality of early care and education programs, five instruments have been used most widely for measuring dimensions of classroom dynamics:

1. Early Childhood Environment Rating Scale (ECERS)
2. Assessment Profile for Early Childhood Programs (Assessment Profile)
3. Arnett Scale of Caregiver Behavior (Arnett Scale)
4. Classroom Practices Inventory (CPI)
5. Preschool Classroom Snapshot (PCS)

Table II.2 summarizes these instruments and the dimensions they measure; Appendix B provides more details and psychometric information. The first four instruments yield global, or overall, measures of the quality of classroom dynamics and provide ratings of a number of classroom dynamics. The fifth instrument, the Preschool Classroom Snapshot, is a "micro-observation" measure that gives more-detailed characterizations of specific elements of classroom dynamics.[1]

The ECERS, Assessment Profile, and PCS are observational tools that describe both the dynamics and the structure of the classroom. For classroom dynamics, they include both interactions and program activities. ECERS rates the value of a child's classroom experiences in several areas: language-reasoning experiences, fine and gross motor activities, creative activities, and social development. The Assessment Profile focuses on four aspects of the dynamic classroom environment: (1) the learning environment (play materials, arrangement of classroom space), (2) the curriculum (supporting a variety of learning experiences, encouraging active involvement of children), (3) interactions (teacher-child interactions, teacher responsiveness to children), and (4) individualizing (supporting children's unique needs). The PCS records the types and frequency of specific classroom activities and the ways in which children are grouped. Activities from the PCS can be coded in various ways, including administrative, concrete/manipulative, symbolic, and active play. For example, playing with blocks can be classified as symbolic play or simply coded as block play. An advantage of these detailed observation records is that researchers can later interpret the data in a variety of ways.
The Arnett Scale and the CPI focus only on classroom dynamics. The Arnett Scale allows researchers to classify teacher behavior and interactions along five or six dimensions. Depending on the study in

[1]Micro-observation measures characterize fine-grained behaviors and interactions within a classroom. For example, every 10 minutes an observer could count the number of different groups of children in a classroom and the number of children in each group. Using this information, researchers can calculate the average number of groups over the course of a day. In contrast, for a global assessment of the same variable, an observer might rate the classroom as having few, some, or many different groupings of children.

TABLE II.2

OBSERVATION INSTRUMENTS MEASURING EARLY CHILDHOOD CLASSROOM DYNAMICS

Instrument Description	Dimensions of Classroom Dynamics	Relevant Studies Using Instrument
Early Childhood Environment Rating Scale (ECERS) (Harms and Clifford 1980)		
A 37-item instrument using a seven-point rating scale that provides extensive descriptive information on the classroom and allows observers to make complex judgments on the quality of the environment. Ratings on each item range from 1 = "Inadequate" to 7 = "Excellent."	Children's language-reasoning experiences, fine and gross motor activities, creative activities, and social development. Other dimensions of ECERS assess classroom structure (see Table II.3).	Observational Study of Early Childhood Programs (OSECP) National Child Care Staffing study (NCCS) Head Start Family and Classroom Correlates study (HSFCC) Cost, Quality, and Child Outcomes in Child Care Centers (CQCO)
Assessment Profile for Early Childhood Programs (Abbott-Shim, Sibley, and Neel 1992)		
An observational checklist containing 147 Yes/No items. Observers indicate whether program characteristics indicative of quality are present.	Learning environment, curriculum, interacting, individualizing. Other dimensions of the Assessment Profile assess classroom structure (see Table II.3).	Observational Study of Early Childhood Programs (OSECP) California Staff/Child Ratio study (CSCR)
Arnett Scale of Caregiver Behavior (Arnett 1989)		
A 26-item instrument using a four-point scale to rate the emotional tone, discipline style, and responsiveness of teachers and caregivers in a classroom. Ratings on each item range from 1 = "Not at all characteristic of the caregiver" to 4 = "Very characteristic of the caregiver."	Teacher behaviors classified in terms of positive relationships (warm, responsive, attentive, encouraging); punitiveness (harsh, critical); detachment; permissiveness (or controlling behaviors); prosocial interaction.	Observational Study of Early Childhood Programs (OSECP) California Staff/Child Ratio study (CSCR) National Child Care Staffing study (NCCS) Cost, Quality, and Child Outcomes in Child Care Centers (CQCO)
Classroom Practices Inventory (CPI) (Hyson et al. 1990)		
As adapted by Goodson (1990), a 30-item scale composed of statements on classroom practices, teacher behaviors, children's activities, and teacher-child interactions. Items classified as either developmentally appropriate (15 items) or inappropriate (15 items) according to NAEYC guidelines. Observer uses a five-point scale for each statement to indicate the extent to which it represents the classroom. Ratings on each statement range from 1 = "Not at all like this" to 5 = "Very much like this."	Developmentally appropriate and inappropriate practices relating to seven components of the NAEYC guidelines: teaching strategies, guidance of socioemotional development, language development, cognitive development, physical development, aesthetic development, and motivation.	Observational Study of Early Childhood Programs (OSECP) California Staff/Child Ratio study (CSCR)
Preschool Classroom Snapshot (PCS) (Ruopp et al. 1979; adapted by Layzer et al. 1993)		
A time-sampling observation technique to capture 27 categories of activities at the end of 5- to 10-minute intervals. Snapshots are recorded at multiple times during the observation period.	Activities occurring (administrative, concrete/manipulative, symbolic, active play); grouping patterns of children (small, medium, large); frequency of activities; adult interaction with groups; teacher and aide responsibilities; child independence. Other dimensions of PCS assess classroom structure (see Table II.3)	Observational Study of Early Childhood Programs (OSECP) California Staff/Child Ratio study (CSCR)

NAEYC = National Association for the Education of Young Children.

which the measure has been used, caregiver behavior is categorized in terms of (1) positive relationships (warm, responsive, attentive, and encouraging), (2) punitiveness (harsh or critical), (3) detachment, (4) permissiveness (or controlling behaviors), and (5) prosocial interaction.[2] The CPI focuses on program activities. It describes developmentally appropriate practices using questions on direct experiences, concrete materials, child-initiated activities, and social interaction.

In addition to these observation instruments, some surveys have obtained teacher or administrator self-reports about classroom practices. For example, the National Transition Study (NTS) surveyed school administrators to obtain ratings on the extent to which developmentally appropriate and inappropriate practices occurred in kindergarten classrooms (Love, Logue, Trudeau, and Thayer 1992). The same items, derived from NAEYC guidelines, could apply to Head Start classrooms. Surveys are not ideally suited for measuring classroom dynamics, however; we recommend using such measures only if observations are not feasible.

The observational instruments listed differ in their ease of use. As one of the earliest attempts to quantify the quality dimensions of early childhood programs, the ECERS has been widely and reliably used (in 4 of the 11 studies reviewed here). Its ratings are complex because each of the 37 items is multidimensional. Nevertheless, clear statements describe rating levels for each item, and raters can be trained to make reliable ratings (Scarr, Eisenberg, and Deater-Deckard 1994). The Assessment Profile is more straightforward because simple descriptive statements are rated "yes" or "no." (For example: "A quiet activity area exists in the room where one or two children may choose to be alone.") As a consequence, training is somewhat easier for the Assessment Profile than for the ECERS. However, the ECERS measures richer gradations in classroom quality. The CPI, like the Assessment Profile,

[2]Most studies have reported the results of factor analysis of the 26 Arnett items. Although the factor structures are highly comparable across studies, researchers have used somewhat different labels for the factors.

uses simpler statements than the ECERS. Because it is newer, it is closely aligned with the characteristics of developmentally appropriate and inappropriate practices as articulated by NAEYC (Bredekamp 1987). The Arnett Scale taps dimensions that are not measured by the ECERS, the Assessment Profile, or the CPI. It requires more judgment on the part of the observer; with training and practice, however, observers can use the scale reliably (Layzer et al. 1993; and Love, Ryer, and Faddis 1992).

While these instruments have been widely used in studies of early care and education programs, some have also been used to measure kindergarten classrooms. The study of Chapter 1 (now Title I) early childhood programs (Seppanen, Godin, Metzger, Bronson, and Cichon 1993) examined (1) the relationships between Chapter 1 prekindergarten classroom environments and children's cognitive and socioemotional development, and (2) the ways in which children's programmatic experiences changed from prekindergarten to kindergarten. The study used all five of these instruments, or adaptions of them, to examine both classroom dynamics and classroom structure in 55 prekindergarten classrooms and 48 kindergarten classrooms. No studies, to the best of our knowledge, have used these instruments in any of the higher grades, although one version of the Assessment Profile is designed for assessing the quality of school-age child care for children 5 to 10 years of age.

B. CLASSROOM STRUCTURE

The structure of the classroom environment refers to the noninteractive aspects of the child's surroundings. These are considered important features of the classroom because many aspects of the physical classroom can either enhance or detract from the early childhood learning environment. Structural components often assume prominence in discussions of program quality because they are readily observed, can be more easily regulated than classroom dynamics, and have been shown to relate to both dynamic features of the classroom and to children's well-being (Hayes et al. 1990;

Howes, Phillips, and Whitebook 1992; Ruopp, Travers, Glantz, and Coelen 1979; and Whitebook, Howes, and Phillips 1989).

1. Attributes of Classroom Structure

We characterize the structure of the classroom by focusing on three elements: (1) physical space (including variables describing safety and health features and adult needs), (2) stability or turnover in enrollment, and (3) organization of caregivers and children in the classroom. The physical space of the classroom environment includes the quantity and the quality of the space, both for children and adults. Variables that measure space encompass the following features of a classroom facility: square footage; provision of private, comfortable areas for children; child-sized facilities; space for group activities; safety features (both inside and outside); separate space exclusively for adults; space that is accessible to children with special needs; and a professional library for staff.

The stability of a classroom is reflected in rates of child and teacher turnover. The components of child turnover include the number of vacancies in the center over the year, the length of time needed to fill vacancies, and the absentee rate. Perhaps the best index, however, is simply the number of children ever enrolled during a year relative to the average daily attendance. (We include teacher turnover as a staff characteristics variable.)

Finally, the manner in which a classroom is organized includes the size of the classroom, the child-staff ratio, the groupings of children, the numbers of children of different ages, the numbers of staff by role, and the number of volunteers or aides. Partly because they are inexpensive to measure and amenable to regulation and monitoring by licensing agencies, child-staff ratio and group size have become two commonly used indicators of classroom quality. NAEYC provides standard guidelines for both of these components of a classroom's structure. These structural variables have been found to be related to the level of individual care and attention a child receives, as well as to the quality of a child's

interactions with other children and with adults. Because of these relationships, these structural features often are described as proxies for quality.

2. Instruments for Measuring Classroom Structure

Three observation instruments already discussed (the ECERS, Assessment Profile, and PCS) have been used frequently to measure the structure and organization of early care and education programs. In addition, data on many of the classroom structure variables have been collected through interviews with program administrators and caregivers. Table II.3 summarizes the major observation instruments and studies that have used them.

All three of the observation instruments are versatile, collecting information on classroom structure and other aspects of the overall program environment. The ECERS depicts classroom structure through three broad topic areas: (1) classroom furnishings; (2) personal-care routines of children; and (3) adult needs, including the availability of areas for personal use and meetings. The Assessment Profile depicts classroom structure primarily through the safety and health features of a classroom (that is, safe supplies, preparation for accidents and emergencies, the availability of first-aid supplies, existence of emergency procedures, and maintenance of personal hygiene). The PCS, using a time-sampling technique, looks at classroom structure by examining groupings of children, child-staff ratios, and total group size during different periods in the day.

Observation instruments are best suited for collecting data on child-staff ratio, group size, physical space, safety, and health characteristics. However, the Profile of Child Care Settings (PCCS) study (Kisker, Hofferth, Phillips, and Farquhar 1991) demonstrated the feasibility of using survey measures to gather data on child-staff ratio, group size, and health and safety features. Nevertheless, comparisons of self-report and observation data indicate that the two methods do not yield identical results on group size and child-staff ratio (Love, Ryer, and Faddis 1992; and Scarr et al. 1994). In spite of these shortcomings, survey interview methods have been used to obtain measures of structural

TABLE II.3

OBSERVATION INSTRUMENTS MEASURING EARLY CHILDHOOD CLASSROOM STRUCTURE

Instrument Description	Dimensions of Classroom Structure	Relevant Studies Using Instrument
Early Childhood Environment Rating Scale (ECERS) (Harms and Clifford 1980)		
A 37-item instrument using a seven-point rating scale that provides extensive descriptive information on the classroom and allows observers to make complex judgments on the quality of the environment. Ratings on each item range from 1 = "Inadequate" to 7 = "Excellent."	Children's personal-care routines, classroom furnishings and display, and adult needs. Other dimensions of ECERS assess classroom dynamics (see Table II.2).	Observational Study of Early Childhood Programs (OSECP) National Child Care Staffing study (NCCS) Head Start Family and Classroom Correlates study (HSFCC) Cost, Quality, and Child Outcomes in Child Care Centers (CQCO)
Assessment Profile for Early Childhood Programs (Abbott-Shim, Sibley, and Neel 1992)		
An observational checklist containing 147 Yes/No items. Observers indicate whether program characteristics indicative of quality are present.	Safety and health. Other dimensions of the Assessment Profile assess classroom dynamics (see Table II.2).	Observational Study of Early Childhood Programs (OSECP) California Staff/Child Ratio study (CSCR)
Preschool Classroom Snapshot (PCS) (Ruopp et al. 1979, adapted by Layzer et al. 1993)		
A time-sampling observation technique to capture 27 categories of activities at the end of 5- to 10-minute intervals. Snapshots are recorded at multiple times during the observation period.	Observed group sizes of children (small, medium, large); observed child-staff ratio; number of different groupings; presence of staff with each group. Other dimensions of PCS assess classroom dynamics (see Table II.2).	Observational Study of Early Childhood Programs (OSECP) California Staff/Child Ratio study (CSCR)

variables that are associated with dynamic variables and are much less expensive (Layzer et al. 1993). Director interviews or program records are best suited for obtaining information on student stability or turnover in enrollment. For example, the National Child Care Staffing (NCCS) study used interviews with program directors and staff to gather data on classroom stability, child turnover, and the organization of teachers and caregivers (Whitebook et al. 1989). The PCCS study asked a series of survey questions on child turnover (Kisker et al. 1991).

C. CLASSROOM STAFF CHARACTERISTICS

Many studies have examined the link between staff characteristics and classroom dynamics. Teachers or caregivers with higher levels of training and education in child development often facilitate a high level of developmentally appropriate activities and interaction in their classrooms (Love, Ryer, and Faddis 1992). In turn, children attending classrooms with more-highly trained caregivers may exhibit a higher level of positive behavior and development (Hayes et al. 1990; Howes, Smith, and Galinsky 1995; Phillips and Howes 1987; and Ruopp et al. 1979). For these reasons, it is important to measure these aspects of staff characteristics. The studies discussed here used survey data to measure staff characteristics and related these measures to other dimensions of program quality in Head Start and other center-based settings.

1. Attributes of Staff Characteristics

The staff characteristics measured in the studies we reviewed span seven attributes: (1) educational attainment, (2) development and training opportunities, (3) experience, (4) salaries and benefits, (5) rate of turnover, (6) professionalism, and (7) demographics. Staff, as discussed here, includes paid and unpaid teachers, caregivers, and aides. (Characteristics of administrators are described later under administration and support services.) Numerous studies have shown that

important links exist between staff quality and other dimensions of program quality, particularly classroom dynamics.

Educational attainment of classroom staff is reflected in bachelor's degrees or advanced degrees in early childhood education, Child Development Associate (CDA) credentials, and other child development certificates, licenses, and credentials.

Distinct from education is the level and content of further development and training that staff members receive during the course of their careers in the field of early childhood care and development. Providing teachers with opportunities for training and continuing education is another important component of program quality. These training opportunities can include a variety of topics, including those relating to early childhood care and education, child development, family development, and community building. Training approaches can involve course work and training in child care and development, in-service training and support, and outside workshops and classes.

In addition to education and training, it is equally important to identify the nature and level of staff experience. Experience typically includes the number of years of teaching experience, number of years of early childhood program experience, number of years in the current program, and other types of positions held.

Salaries and benefits, which may correlate with the level of experience, represent a distinct element of program quality. Paying appropriate salaries and providing adequate benefits may help programs attract well-educated and trained staff members and minimize the degree of staff turnover. The key components of the salaries and benefits dimension include opportunities for advancement; the wage structure of the center; and the range of benefits, including insurance, paid sick and personal days, and retirement benefits. Maintaining low staff-turnover rates, defined by the length of employment of staff members, allows a program to offer more continuity in the curriculum and a more stable environment for children.

Professionalism is defined in a number of ways, including the manner in which staff members are assigned and promoted, provisions for staff input into hiring decisions, staff's philosophy and approach to teaching, leadership ability, and professional satisfaction. These variables, many of which can be measured through survey questions, provide valuable contextual information relating to staff characteristics. Finally, staff demographics encompass background information such as the gender and racial makeup of staff, the racial and ethnic match between staff and children served, and the extent to which staff members represent the larger community in which children live.

2. Instruments for Measuring Staff Characteristics

No standardized instruments have been widely used for gathering information on caregiver, teacher, and staff characteristics. Each of the studies we reviewed developed its own survey instruments to interview caregivers and administrators, although there is considerable overlap in questions asked. These instruments provide information on one or more of the seven aspects of staff characteristics; this information has allowed researchers to examine the relationship between these characteristics and other dimensions of program quality. Table II.4 summarizes the types of staff characteristics that are measured in the studies reviewed in this report.

For the Observational Study of Early Childhood Programs (OSECP), Layzer et al. (1993) conducted staff interviews to gather information on staff background and experience, development and training, teaching approach and philosophy, leadership style, and demographics. The NTS included survey questions about types of staff development and training opportunities provided by the school and those in which at least half the kindergarten teachers participated.

The NCCS study examined child care centers in terms of their value as work environments for teachers and staff members, to determine how that environment affects the quality of care (Whitebook et al. 1989). The manner in which characteristics of teachers and staff members are linked to the quality of care was also examined. NCCS developed staff interviews and director interviews to gather

TABLE II.4

SUMMARY OF THE TYPES OF VARIABLES FROM MAJOR STUDIES USING SURVEY INSTRUMENTS TO MEASURE CLASSROOM STAFF CHARACTERISTICS, ADMINISTRATION AND SUPPORT SERVICES, AND PARENT INVOLVEMENT

	OSECP	CSCR	NCCS	PCCS	NTS	CCDP	ES	JOBS	FSC	HSFCC	CQCO
Key Types of Classroom Staff Characteristics Variables											
Educational Attainment	X	X	X	X			X	X	X	X	X
Development and Training	X	X	X	X	X		X		X		
Experience	X	X	X	X			X			X	X
Salaries and Benefits			X	X							X
Turnover Rate			X	X							X
Professionalism	X		X							X	X
Demographic Characteristics	X	X	X								
Key Types of Administration and Support Services Variables											
Director/Administrator Qualifications			X								X
Staff Coordination and Assessment	X		X		X				X		X
Program Characteristics	X	X	X	X					X		X
Program Schedule	X			X	X						
Financial Capacity			X	X					X		X
Supportive Services for Children and Families				X	X	X	X		X		
Key Types of Parent Involvement Variables											
Parent Participation in the Classroom	X			X	X						
Involvement in Parent Education Activities	X			X	X	X	X		X		
Involvement in Program Decision Making	X			X	X						
Interaction with Other Parents	X			X		X	X				
Approach to Child Development in the Home					X		X	X		X	
Interaction with Staff and Community Members	X			X	X	X	X		X		

TABLE II.4 *(continued)*

CCDP	=	Comprehensive Child Development Program evaluation.
CQCO	=	Cost, Quality, and Child Outcomes in Child Care Centers.
CSCR	=	California Staff/Child Ratio study.
ES	=	Even Start family literacy national program evaluation.
FSC	=	Head Start Family Service Center demonstration.
HSFCC	=	Head Start Family and Classroom Correlates study.
JOBS	=	Job Opportunities and Basic Skills training program evaluation.
NCCS	=	National Child Care Staffing study.
NTS	=	National Transition Study.
OSECP	=	Observational Study of Early Childhood Programs.
PCCS	=	Profile of Child Care Settings study.

data on staff demographic background, child care experience, other positions held, wages and benefits, educational attainment, professional satisfaction, staff turnover and stability, and personal recommendations for improving the child care profession. Howes (1992) reports that one-week test-retest reliability for the NCCS study interview ranged from .79 to .84 across items, with an average reliability coefficient of .82. Selected questions from this interview were also used in the PCCS survey (Kisker et al. 1991). Few studies report reliability evidence for interview items.

The PCCS's center-based program survey instrument collected data on both individual staff members and the overall program. Information was obtained on the educational attainment of individual classroom staff members, years of experience in a preschool setting, types of child-related training, extent of child- related training within the past year, and salaries and benefits. The survey also obtained data on program characteristics, such as the use of specialists, staff turnover, and the length of time needed to fill teaching vacancies. For these items, we therefore have means and frequency distributions for a nationally representative sample of programs that includes Head Start centers.

D. ADMINISTRATION AND SUPPORT SERVICES

The administrative skill with which early care and education programs are managed and the supportive services they provide for children and families influence their effectiveness in meeting the needs of children and families. Effectively run programs maintain fiscal responsibility while limiting unnecessary costs, maintaining the quality of care and services, and tailoring services to meet the unique needs of children and families. Through the creative use of supportive services, program directors can also provide more comprehensive support to children and their families. To tailor services to unique needs and family environments, programs collect and track detailed socioeconomic and demographic data on the children and families to whom they provide services. Although evidence of relationships between administrative variables and child outcomes is scant, all of the studies examined here have built these elements into their data collection to varying degrees. The Cost,

Quality, and Child Outcomes in Child Care Centers (CQCO) study will yield analyses of these relationships for its large multistate sample of programs. The survey instruments and information systems discussed next measure a variety of aspects of program administration and support services.

1. Attributes of Administration and Support Services

We examine six attributes of administration and support services: (1) qualifications of the program director or administrator, (2) coordination with and assessment of staff, (3) program administrative characteristics, (4) program schedule, (5) financial capacity, and (6) supportive services for children and families. The qualifications of the director/administrator include characteristics such as educational attainment and professional degrees held, prior experience in early child care and education, prior experience in nonprofit organization management, and relevant training courses. Coordination with and assessment of staff includes the nature of the relationship between program management and teachers and caregivers. Directors and managers who empower staff members, foster open channels of communication, and cultivate relationships with other organizations in the community may develop more positive and effective working relationships with their staff. Specifically, this area includes variables that measure administrative leadership and philosophy; staff members' satisfaction with the working environment and their role in it; staff input into program decisions; management-staff interactions through regular meetings and interactions; structured methods for staff evaluation and assessment; and clearly defined personnel policies and procedures. The literature does not generally provide empirical links between administrative/ support services and child outcomes. It does, however, offer insights into the relationship between administrative/support services and quality. We discuss these variables in terms of the program environment assessment because we believe they represent important dimensions of overall program quality for Head Start and other early childhood programs.

Providers with a number of different financial structures, sponsors, and standards exist in today's early care and education market. Four important administrative characteristics to consider in distinguishing one program type from another are (1) auspice (public, nonprofit, for-profit), (2) licensing by state agencies, (3) sponsorship (church, school), and (4) accreditation through NAEYC. The state in which the provider is located is also an important factor, because a range of standards for early care and education providers exists among states. In addition, an understanding of the providers' goals, philosophy, and mission can provide important contextual information. Although program auspice and licensing are not relevant for Head Start, sponsorship and accreditation may be.

The schedule of a child care facility can also affect children's experiences and the lives of parents. Early childhood programs vary in their daily hours of service, days per week, and in the number of weeks per year that the program is available. Higher-quality programs offer a schedule of care that better suits the needs of the children's parents and families.

Both the financial capacity of an organization and the effectiveness of its resource management influence overall program and classroom quality. Important components of financial capacity include (1) total revenues and total net revenues, (2) subsidies and donations received as a percentage of total revenues, (3) per-child cost of care, and (4) parental fees charged as a proportion of total revenues. Volunteer assistance (both in the program office and in the classroom) also may be an important indicator of the level and effectiveness of administrative support services. A higher level of volunteer assistance may decrease the per-child cost of care.

The financial capacity of a program may also affect the extent to which it can provide a range of supportive services to children and families. Supportive services may include availability of health care services (such as immunizations, well-child checkups, and nutrition counseling), dental services, and mental health services at the center; maintenance of health records; case management and monitoring; referrals of children, parents, and families to other community agencies for social service needs (such

as health, nutrition, job training, public assistance, literacy training, child abuse and neglect, and substance abuse); and the level of collaboration and information sharing with other community service providers.

2. Instruments for Measuring Administration and Support Services

Data on administration and support services typically have been gathered through interviews (both by telephone and in person) and self-administered questionnaires. These interviews and questionnaires have collected data that can be used to examine the relationships between administration and support services and other dimensions of quality. By selecting appropriate items from these instruments, researchers can obtain information in ways that promote comparability with other studies. Table II.4 summarizes the six key types of administration and support service variables measured in the studies examined here.

For the OSECP study, Layzer et al. (1993) collected data on program philosophy and the leadership style of the director through staff and director interviews. In a study for the state of California, Love, Ryer, and Faddis (1992) captured data on program goals and philosophy through interviews with program directors. A classroom data form provided supplementary information on the number of children whose families paid full or subsidized fees.

The NCCS study, through its analysis of the work environment of child care centers, collected information from directors on their background and qualifications, as well as on program goals, history, auspice, budget, and level of program subsidization (Whitebook et al. 1989). The PCCS collected information on program administration and support services using computer-assisted telephone interviews with child care center directors (Kisker et al. 1991). Information relevant to this area includes program goals, fees charged to parents, subsidies received, auspice, sponsorship, accreditation and licensing, and support services (such as health services and meals).

The Head Start Family Service Center (FSC) demonstration collected information on the administration and support service characteristics of Head Start programs through a self-administered project director questionnaire. Important items focused on program characteristics, staff supervision and meetings, types of supportive services provided, case management characteristics, referral services, collaborative relationships with other agencies, barriers to services, and revenue sources.

Finally, both the Comprehensive Child Development Program (CCDP) and Even Start evaluations gathered information on coordination with other service agencies and case management strategies from existing program records and information systems.

E. PARENT INVOLVEMENT

The nature and extent of parent involvement in early childhood programs may ultimately affect child growth and development (Education Commission of the States 1988; and Epstein 1987). By involving parents in their children's early care and education, providers can foster positive parental expectations for their children's development and can help parents enhance the developmental stimulation their children receive at home. Some evidence suggests that parent involvement experiences and the receipt of Head Start social services improve the well-being of parents, measured in terms of depression, anxiety, and skill in dealing with life stress (Parker, Piotrkowski, and Peay 1987). In addition, the stimulation that parents provide in the home environment may reinforce the positive qualities of the child care setting and may have profound effects on a child's socioemotional and cognitive development, approaches to learning, and overall readiness for school.

1. Attributes of Parent Involvement

We examine six attributes of parent involvement: (1) parent participation in the classroom, (2) parent involvement in parent-education activities, (3) parent involvement in program decision making, (4) parent interaction with other parents, (5) parent approaches to child development in the

home, and (6) parent interaction with staff and other community members. Parent involvement encompasses involvement by mothers, fathers, and other family caregivers and has been a cornerstone of the Head Start program since its inception (Ellsworth Associates 1995; Lamb Parker, Piotrkowski, Horn and Greene 1995; U.S. Department of Health and Human Services 1984). Participation in the program allows parents to relate to their child's experiences, observe their child's interactions with other children and adults, learn from child care professionals, serve as volunteers, and visit classrooms. Parent involvement in educational activities designed for parents includes participation in education programs, workshops, counseling services, and staff visits to their home.

Head Start programs also encourage parent involvement by providing a forum through which parents can actively and directly participate in program decision making that relates to the nature and quality of their child's care and education. This involvement includes participation on Head Start policy councils and a variety of other program committees.

Through active involvement in the program, parents may also become better acquainted with each other, thereby forming friendships and potentially strong, supportive relationships with each other. When parents interact positively and develop secure relationships with each other, they may become more involved in their child's development and more interested in the values and goals of the Head Start program. Furthermore, the existence of supportive relationships among parents may support the development of parenting skills, encourage greater continuity in parenting practices, and foster a sense of community among program families.

The nature of the parent's approach to child development in the home reflects the role of parents as the primary educators of their children. It includes a number of key components: parent-child interactions, developmentally appropriate learning activities and materials, parenting skills and disciplinary techniques, and parent attitudes and expectations toward children. To meet the needs of parents and families, program staff must develop open and regular channels of communication with

parents. This involves frequent caregiver-parent interactions, teacher-parent meetings, visits to parents' homes by staff members, contact through case management techniques, and the existence of an "open-door" visitation policy in child care centers. Through frequent interactions, teachers and parents can discuss topics and exchange ideas relating both to parenting and to early care and education practices and can develop positive relationships with each other. Teachers thus can encourage parents to develop sound parenting skills and to interact with their children at home in positive and developmentally appropriate ways. When teachers' values and practices on child development and teaching are relatively consistent with parents' values and practices on child development and parenting, the child's experience in the home can better reinforce his or her experiences in the program, and vice versa.

The importance of parent involvement for Head Start program practices provides a strong rationale for measuring aspects of it in studies of early childhood program environments. Although little empirical data exist on the relationships between measures of parent involvement in Head Start and child outcomes, a number of studies of child care centers or family child care arrangements have demonstrated that parents' approaches and attitudes toward child-rearing have important implications for children's development. For instance, one study of children in center-based care revealed that children whose mothers placed a higher value on their children's prosocial skills scored higher on tests of cognitive performance and language development (Kontos 1991). In addition, an examination of children in family child care homes found, after controlling for the quality of care, that children from families that were more nurturing, less restrictive, and less stressed had higher levels of competent play with adult caregivers, peers, and objects (Howes and Stewart 1987).

2. Instruments for Measuring Parent Involvement

Studies have gathered data primarily through interviews, self-administered questionnaires, and (in some cases) observations in the home. Table II.4 summarizes the six key types of parent involvement

variables collected in the studies we reviewed. Two of the observation instruments (ECERS and the Assessment Profile) have items appropriate for this dimension of quality. ECERS includes an item measuring program provisions that involve parents and foster communication with them. The Assessment Profile includes a number of items concerning parent-teacher communications and interactions. Although these are part of the observation instruments, instructions direct the observer to obtain this information by interviewing teachers or directors if there is no opportunity to observe the interactions. For many research purposes, collection of these items through surveys is most appropriate and cost-effective.

For the OSECP study Layzer et al. (1993) used a survey interview format to ask administrators and teachers about the level of parent participation in the classroom and program and the level of staff-parent interaction. Questions focused on parent volunteering in the classroom, education and training activities for parents, home visiting, participation on program committees (such as staff selection, fund-raising, and budget review), and teacher-parent conferences and communications.

Questions in the PCCS study focused on the ways in which parents were involved in the program and how they interacted with staff members (Kisker et al. 1991). Specifically, questions dealt with parent volunteering, classroom visits, attendance at workshops or classes in the center, frequency and extent of home visits, parent interaction with other parents, frequency and extent of teacher-parent meetings, and parent participation in program operations through activities such as committee involvement, selection of staff members, and input into curriculum decisions.

In the NTS, Love, Logue et al. (1992) collected information from school administrators on the extent to which schools provided opportunities for the following elements of parent involvement: parent volunteering in the classroom, participation in education workshops, home visits, participation on committees, teacher-parent meetings, and at-home learning activities that support program goals. Questions from these studies could be adapted for Head Start and other preschool programs.

The Head Start FSC demonstration hoped to find effective ways to help parents overcome problems relating to illiteracy, substance abuse, and unemployment. FSC views these three areas as often restricting the ability of parents to become self-sufficient and to provide a nurturing and stimulating home environment for their children. The FSC evaluation collected detailed information using a baseline and a follow-up parent interview and questionnaires completed by project directors and case managers on these topics: parent participation in classes and trainings, parent use of services, parent-staff interactions, case-management-related communications and activities, and parent relationships with individuals and organizations within the community.

Through interviews with parents and direct observations (both at the program site and in the home), the CCDP evaluation collected information on many dimensions of parent involvement, including participation in early childhood services, health care services, parent activities, and case management; interactions among parents, program staff, and case managers; and parenting skills (disciplinary methods, attitudes, and expectations). Several questions were adapted from the Home Observation for Measurement of the Environment (HOME) Inventory (Caldwell and Bradley 1984) and Home Screening Questionnaire (JFK Child Development Center 1981). Using the Child Status Interview, observers also assessed the nature of mother-child interactions for children through age 3 (St. Pierre, Goodson, Layzer, and Bernstein 1994).

The Even Start evaluation used extensive measures of parent involvement. They focus on activities and services offered to parents; parent-staff interaction; parents' role in their child's development in the home; activities in the home involving books and reading; teaching and participation in child learning activities; encouragement of child creativity; expectations and attitudes toward children; level of frustration with child's attention demands; and involvement with community organizations, support networks, schools, and child care providers. The parent interview borrows questions from several existing instruments to measure the nature and quality of parent-child

interactions in the home. These include the HOME Inventory (Caldwell and Bradley 1984), the High/Scope Home Environment Scale (Deloria, Love, Goedinghaus, Gordon, Hanvey, Hockman, Platt, and Nauta 1974), and the Parent as a Teacher (PAAT) Scale (Strom 1984).

Our goal is to recommend measures previously used in large-scale studies. It may be possible, however, to supplement these measures with new instruments that contain items pertinent to attributes of parent involvement, such as the parent's relationship with the program, that have not been as widely measured in the major studies we reviewed. Howes, Kontos, and Galinsky (1995), for example, have developed the Perceived Relationship Scale that asks parents to rate the perceived emotional support, trust, general accessibility, helpfulness, and supportiveness of program staff.

F. SUMMARY

We have described a conceptual framework for measuring the quality of Head Start and other early childhood program environments in terms of five key dimensions: (1) the dynamic nature of children's interactions and activities in the classroom; (2) structural features of the classroom such as space and organization; (3) staff characteristics such as education and training, experience, salaries, and turnover; (4) administration and support services such as program director qualifications, staff coordination and assessment, and program characteristics and services; and (5) parent involvement in the classroom and program, parent interactions with other parents and staff, and parent approach to child development in the home. We discussed numerous standardized instruments that have been used successfully for describing, coding, and classifying important interactional and structural features of classroom environments. We also discussed several large-scale studies that have developed survey instruments to interview caregivers, administrators, and parents about various contextual aspects of program environments.

III. FINDINGS AND IMPLICATIONS FROM LARGE-SCALE STUDIES MEASURING EARLY CHILDHOOD PROGRAM ENVIRONMENTS

Hundreds of studies have measured aspects of early childhood program environments. For future research purposes, however, we can learn most from studies that (1) were implemented in multiple sites with a large sample of programs, (2) involved Head Start programs (or programs that share many of the characteristics of Head Start), and (3) collected data on the program dimensions that we described in the last chapter. We reviewed 11 studies that met these criteria. Appendix A contains brief summaries of these studies, and Table III.1 highlights these features of each study: (1) date conducted, (2) purposes of the study, (3) types of programs studied, (4) populations the programs served, and (5) study design and sample. In this chapter, we summarize the findings from each study that may be useful for guiding decisions about instruments to use in future research. We present the findings and implications that pertain to measuring the dimensions of classroom dynamics, classroom structure, staff characteristics, administration and support services, and parent involvement.

A. FINDINGS AND IMPLICATIONS FOR MEASURING CLASSROOM DYNAMICS

1. Summary of Findings

Six of the studies produced findings with implications for measures of classroom dynamics. The most recent of the Head Start observational studies, the Observational Study of Early Childhood Programs (OSECP), reached four key conclusions related to classroom dynamics: (1) the amount of adult-child interaction was greater, and global measures of classroom quality were higher, when child-staff ratios were lower (fewer children per staff member); (2) teachers spent more time interacting with children, teaching children, teaching language/number concepts, and using positive techniques when they were more highly educated; (3) teachers spent more time teaching and interacting with individual

TABLE III.1

HIGHLIGHTS OF LARGE-SCALE STUDIES MEASURING EARLY CHILDHOOD PROGRAM ENVIRONMENTS

Year(s) of Data Collection	Major Purpose(s)	Types of Programs Studied	Populations Served	Study Design and Sample Description
Observational Study of Early Childhood Programs (OSECP) (Layzer et al. 1993)				
Spring 1991	To define and measure the quality of early childhood programs; to show how classrooms and staff characteristics influence quality; to identify the ways in which overall quality relates to classroom dynamics.	Early childhood programs, including: Head Start, school-sponsored programs, and other child care centers	4-year-old children from low-income families	Random sample of 119 center-based programs, stratified by type of center, was selected from five sites; the sites were chosen to ensure geographic and regulatory diversity among programs (one site each from California, Florida, Michigan, New Jersey, and Texas). One classroom from each center-based program was randomly selected for the study; all children and many of the staff members in the classrooms were included in the observational analysis.
California Staff/Child Ratio (CSCR) Study (Love, Ryer, and Faddis 1992)				
Fall 1990 and Spring 1991	To determine the effect on program quality of an increase in the child-staff ratio from 8:1 to either 9:1 or 10:1.	Center-based child care classrooms from state-funded child care service agencies	3- to 5-year-old children receiving subsidized care	Sample of 112 child care classrooms representing 10 percent of the California agencies that operated state-funded child development programs. All classrooms had volunteered for the study. All children in the classrooms were included in the observational analysis.
National Child Care Staffing (NCCS) Study (Whitebook et al. 1989)				
February to August 1988	To determine the impact that the professional work environment and the characteristics of teachers and staff have on the quality of child care.	Licensed child care centers	Infant, toddler, and preschool children from families of all income groups	A random sample of 227 child care centers, stratified by the income level of children served and the proportion operated in urban or suburban areas, was selected from five metropolitan areas (Atlanta, Boston, Detroit, Phoenix, and Seattle); the five areas were chosen on the basis of geographic and regulatory diversity, relative distribution of nonprofit and for-profit centers, and state legislative attention to child care staffing issues. Within each center, three classrooms (one each from infant, toddler, and preschool classrooms) were randomly selected; within each classroom, one teacher and one assistant were randomly selected; and, from one of the sites, two children from each classroom were randomly selected for observation.
Cost, Quality, and Child Outcomes in Child Care Centers (CQCO) (Cost, Quality, and Child Outcomes Study Team 1995)				
Spring and Summer 1993	To examine the relationships between child care cost, program administration, quality of care, and child cognitive and social-emotional development.	State licensed nonprofit and for-profit child care centers	Infant, toddler, and preschool children from families of all income groups	A random sample of 50 nonprofit and 50 for-profit child care centers, stratified by auspice, was selected from each of four states (California, Colorado, Connecticut, and North Carolina); the states were chosen on the basis of regional, demographic, and program diversity. Within each center, two classrooms were randomly selected for observation and a total of 826 preschool children from the classrooms were observed.

TABLE III.1 *(continued)*

Year(s) of Data Collection	Major Purpose(s)	Types of Programs Studied	Populations Served	Study Design and Sample Description
Head Start Family and Classroom Correlates Outcomes Study (HSFCC) (Bryant et al. 1994)				
Fall 1990-Spring 1991 and Fall 1991-Spring 1992	To examine how classroom quality affects child development, controlling for the child's home environment; to determine how teacher education, experience, and attitudes affect classroom quality.	Head Start	3- to 5-year-old children from low-income families	A sample of 32 Head Start classrooms, or more than 85 percent of Head Start classrooms in one southern metropolitan area, were examined; the metropolitan area included a relatively even distribution of urban, suburban, and rural classrooms. From the participating classrooms, four children (two boys, two girls) were randomly selected for the study.
Profile of Child Care Settings (PCCS) Study (Kisker et al. 1991)				
Fall 1989-Winter 1990	To compile national-level data on the availability and characteristics of early care and education programs; to examine the characteristics of child care providers associated with quality of care.	Formal early care and education programs including Head Start, public school-based programs, other center-based programs, and regulated home-based providers	All children and families served by formal early care and education providers	A random sample of 2,672 providers (including 2,089 center-based programs and 583 home-based programs), stratified by type of provider, was selected from a nationally representative, random sample of more than 2,800 counties; the final sample of 100 counties was stratified by region, metropolitan status, poverty level, and proportion of the population under age 5.
National Transition Study (NTS) (Love, Logue et al. 1992)				
Fall 1989-Spring 1990	To examine the ways that public schools provide activities to help children transition to kindergarten and the ways that they can help to develop preschool-kindergarten continuity.	Kindergarten classrooms within public school districts	4- to 5-year-old children, including those from low-income families	A nationally representative, random sample of 1,003 public school districts, stratified by size and poverty level, was selected; high-poverty districts were oversampled. Within each district, up to two public schools with kindergarten classes, also stratified by size and poverty level, were randomly selected (a total of 1,662 schools). Eight schools that primarily served disadvantaged students were chosen for site visits.
Comprehensive Child Development Program (CCDP) Evaluation (St. Pierre et al. 1994)				
Fall 1991-Fall 1994	To determine how CCDP services for children and families impact child development and maternal outcomes.	CCDP projects that offer comprehensive services relating to child care and development, child health, parenting, and family functioning	Children from low-income families (6 months old through the age of entry into elementary school) and their parents.	A sample of 21 CCDP projects, or nearly 88 percent of the original CCDP projects, participated in the evaluation. From these projects, approximately 4,400 families were randomly assigned either to a treatment group that received CCDP services or a control group that did not. The focus child chosen from each family for the evaluation was between the ages of 6 and 12 months at the time of CCDP enrollment. Final evaluation results are pending.

TABLE III.1 *(continued)*

Year(s) of Data Collection	Major Purpose(s)	Types of Programs Studied	Populations Served	Study Design and Sample Description
Head Start Family Service Center (FCS) (Abt Associates Inc. 1992)				
Spring 1992-Spring 1994	To examine how comprehensive services within a Head Start program environment affect parent and family outcomes and address the problems of illiteracy, substance abuse, and unemployment; to explore strategies for collaborating service delivery to low-income families.	Head Start FSC demonstration projects that offer extensive services to children and families in the areas of child care, education, health, parenting, and social services	Children from low-income families (primarily preschoolers) and their parents.	A sample of 13 FSC demonstration projects, representing more than 30 percent of the total number of FSCs, was examined. From these FSCs, families were assigned either to a Head Start treatment group that received FSC services or a control group that received only regular Head Start services. Final evaluation results are pending.
Even Start Family Literacy Program Evaluation (St. Pierre et al. 1993)				
Spring 1990-Spring 1993 (Parts of four school years)	To ascertain how integrated child care and education services for children and families affect school readiness and parenting skills and education.	Even Start family literacy programs that provide services relating to early childhood education, adult basic skills and literacy, and parenting education	Children (ages 3 to 8) from low-income families and their parents.	A National Evaluation Information System (NEIS) was developed to provide ongoing descriptive information on all Even Start programs and most Even Start families; the NEIS allows for analysis of pretest-posttest data. In an in-depth study, approximately 200 families from five Even Start programs were randomly assigned either to a treatment group that received Even Start services or a control group that did not. Final evaluation results are pending.
Job Opportunities and Basic Skills (JOBS) Training Program Evaluation (Manpower Demonstration Research Corporation and Child Trends 1992 and 1993)				
Spring 1992, Ongoing	To examine how employment and training services and child care assistance affect job stability, economic self-sufficiency, and child development among Aid to Families with Dependent Children (AFDC) families.	JOBS, a program for AFDC recipients, offers a variety of employment and training services and child care assistance	AFDC recipients and their children (3- to 5-year-olds in the child outcome substudy)	Approximately 55,000 AFDC recipients and applicants from seven sites were randomly assigned either to the human capital development treatment group, the labor force attachment treatment group, or a control group. From three of the original seven sites, the child outcomes substudy follows approximately 3,000 AFDC participants and their preschool children. From one of the original sites, the observational substudy examines the parent-child interactions of 370 families.

children in classrooms that involved a majority of parents in several different types of activities; and (4) classrooms were rated higher on use of developmentally appropriate activities when teachers were more highly educated and trained. Although the OSECP findings cannot be generalized to all early care and education programs, they are particularly relevant to Head Start research because (1) they are based on a relatively large sample of programs; (2) the programs included a sizable sample of Head Start classrooms; and (3) the children served in all programs represent a population similar to that served by Head Start.

OSECP showed that global measures demonstrate adequate reliability in their internal consistency and that they measure many facets of classroom dynamics that are important elements of effective early childhood program practice. Scores on three of the major global measures (ECERS, Assessment Profile, and CPI) were so highly correlated, however, that using all three provides redundant information. Another global rating instrument, the Arnett Scale, captures important qualities of teacher affect and style, especially "teacher responsiveness," that the other global ratings do not measure.

Micro-observational methods are useful for capturing behavior interactions that underlie the dynamic processes of early childhood classrooms, but these methods would be prohibitively expensive to implement in large national studies. Furthermore, all four global instruments were significantly correlated with many of the micro-observational measures of quality, suggesting that the microdata are not essential for understanding important early childhood classroom dynamics.

The California Staff/Child Ratio (CSCR) study reached two important conclusions relating to classroom dynamics: (1) children spent less time uninvolved and exhibited lower levels of stress behavior, and caregivers acted in a more attentive and encouraging manner, in classrooms with more developmentally appropriate practices; and (2) children exhibited low levels of negative behaviors when there was a supportive learning environment and when teachers treated children in a positive and individualized manner. The CSCR study further demonstrates that global measures of quality (in this

case, the Assessment Profile, Arnett Scale, and CPI) can be used reliably in a large multisite study. Furthermore, the CSCR study documented important links between classroom dynamics and other quality elements. It demonstrated that developmentally appropriate practices are important because they relate to caregiver interaction styles and children's behavior.

The findings from the NCCS study, although not based on a representative sample of early care and education providers, provide a wealth of information on the characteristics of center-based child care teachers and caregivers. Several key conclusions relate to classroom dynamics: (1) teachers provided more appropriate and sensitive caregiving when they had received more formal education and early childhood training at the college level and when they earned higher wages and benefits; (2) teachers and children interacted in a more positive and prosocial manner when the child-staff ratio was lower; and (3) children who attended centers with greater staff turnover and lower levels of quality were less competent in social and language development. Thus, important links between children's development and caregiver behaviors and education were documented in a large-scale national study.

The Head Start Family and Classroom Correlates Outcomes (HSFCC) study reached several key conclusions relating to classroom quality:[3]

- Children's cognitive and pre-academic skill development was higher, controlling for the quality of a child's home environment, when children attended higher-quality classrooms.
- Children from more stimulating home environments, compared with children from less stimulating environments, benefited more from classrooms that had a high-quality curriculum in problem-solving and reasoning skills.
- Children scored higher on verbal skills, information processing, and pre-academic skills when they attended higher-quality Head Start classrooms; however, teachers' ratings of children's behavioral and social skills were not associated with classroom quality.

[3]HSFCC analyzed total ECERS scores, so the quality measure did not distinguish between the dynamic and structural items.

- Only nine percent of the Head Start classrooms received a mean ECERS score of 5 or better, the level that indicates "good" developmental practice according to the ECERS authors. This compares with the CQCO study's finding of 14.1 percent of classrooms scoring 5 or better, and OSECP's finding that 29 percent of classrooms had scores of 5 or better.

CQCO concluded that more than half of the child care centers examined failed to meet children's needs for learning and warm relationships. Controlling for maternal education and child gender and race/ethnicity, children displayed greater receptive language ability, higher levels of pre-mathematics and social skills, and more positive attitudes toward themselves when they attended higher-quality preschool classrooms. Unlike some research, CQCO found no significant differences between nonprofit and for-profit centers in the quality of classroom dynamics.

The NTS demonstrates the feasibility of conducting a large-scale mail survey of public school districts and schools. The self-reported data provided a useful description of kindergarten classroom practices, indicating the prevalence of developmentally inappropriate activities mixed with developmentally appropriate practices. The NTS also demonstrates the possibility of collecting comparable preschool- and kindergarten-level data on classroom practices using survey methods.

2. Implications for Future Research

Collectively, these studies demonstrate that it is possible to collect both global measures of classroom dynamics and very detailed micro-observations in a large-scale, multisite national study. Obtained this way, measures are reliable and appear to be valid in that they are related to each other and, in some cases, to child outcomes. The findings of the studies suggest that priority in the area of classroom dynamics should be given to measuring (1) global classroom quality, (2) instructional practices indicative of developmentally appropriate or inappropriate activities, and (3) different types and characteristics of caregiver behavior. We see six specific implications for measuring program environments:

1. Classroom dynamics are critical features of program environments because many of their attributes relate to children's behavior and well-being.

2. The most widely used global measures (ECERS, Assessment Profile, and CPI) are fairly highly correlated with each other. Their results are not totally redundant, however, if one examines subscales. For example, even though Layzer et al. (1993) report high correlations between total scores on the ECERS and the Assessment Profile, Abbott-Shim, Neel, and Sibley's (1993) analysis of subscale scores showed that the scheduling and interacting scales of the Assessment Profile are not highly correlated with ECERS subscale scores and may be measuring different aspects of classroom dynamics.

3. One of the global measures (the Arnett Scale) is among the easiest to use and captures aspects of teacher-child interactions that the other global measures do not. Ratings of teacher behaviors such as attentiveness, encouragement, warmth, and detachment are associated with positive child well-being.

4. Micro-observational methods that capture teacher-child interactions in greater detail have intuitive appeal but would be prohibitively expensive to conduct in very large studies. Furthermore, the global measures have been shown to be substantially correlated with scores from the micro-observations.

5. Self-reported data on classroom practices may be a useful supplement to observation-based measures (but cannot substitute for direct observations).

6. The increasingly wide use of a core set of global measures of classroom dynamics ensures that researchers will be able to make comparisons with other studies.

B. FINDINGS AND IMPLICATIONS FOR MEASURING CLASSROOM STRUCTURE

1. Summary of Findings

The measures used in OSECP encompass many important aspects of classroom structure, as defined by the NAEYC guidelines. As with their measures of classroom dynamics, these instruments demonstrate adequate internal consistency. OSECP reached two key conclusions relating to classroom structure: (1) the amount of adult interaction with children was greater and global measures of classroom dynamics indicated higher quality when child-staff ratios were lower (fewer children per staff member); and (2) compared with child care and Chapter 1 classrooms in the study, Head Start classrooms had much lower child-staff ratios and were less likely to have only a single adult

supervising children for a substantial period of time. Furthermore, compared with other program types, Head Start classrooms were highly rated and had more consistent levels of quality, measured by such indicators as physical space, equipment, and safety. The findings suggest that classroom structure variables, particularly the child-staff ratio, are equally important in Head Start as in child care and Chapter 1 programs for 4-year-olds. While OSECP did not measure child outcomes, it did demonstrate essentially the same degree of association between the classroom structure and classroom dynamic variables as in other studies that have found associations with child outcomes (for example, the CQCO and NCCS studies).

As with OSECP, the CSCR study showed how classroom structure is associated with the quality of classroom dynamics. First, children were more likely to spend time in large groups and be less involved in activities when child-staff ratios were higher. Second, classrooms were rated as more developmentally appropriate, in terms of instructional activities and caregiver-child interactions, when they achieved higher ratings on structural dimensions such as safety and health, as measured by the Assessment Profile. Thus, CSCR documented moderately strong associations between classroom structure and program dynamics. CSCR also showed that ratios and class sizes reported by programs are somewhat larger than those calculated by the trained observers using the PCS.

The NCCS study reached two key conclusions relating to classroom structure: (1) teachers and children interacted in a more beneficial manner when the child-staff ratio was lower; and (2) higher-quality centers, in terms of classroom dynamics, were more likely to have lower child-staff ratios.

The PCCS study is unique because it developed a statistical profile of the population of early care and education providers in the United States. It reached several main conclusions relating to classroom structure: (1) group sizes and child-staff ratios increased from the late 1970s to 1990; (2) in 1990, average group sizes and child-staff ratios were in the middle to upper end of the recommended ranges of group sizes and ratios; and (3) in group sizes and ratios, the quality of care provided by programs

serving low-income children is comparable to the quality of care provided by other programs. The NTS demonstrated an important correlate of structural variables: child-staff ratios were lower when the poverty level of the school was higher.

2. Implications for Future Research

Although variables describing classroom dynamics (discussed earlier) are most likely to affect child development and well-being, some studies find elements of classroom structure to be significantly correlated with dynamic variables. Thus, it is important for research studies to include, at a minimum, data on child-staff ratios in classrooms, as well as data on group sizes. The extent to which a classroom environment promotes children's safety and health is also a key element of quality that should be considered for inclusion in the data collection design. Structural features (such as child-staff ratios) are relatively easy to measure using survey instruments. Studies such as the PCCS and NTS demonstrate that computer-assisted telephone interviews and self-report mail surveys, respectively, can provide this information. The data from these sources, however, will differ from the data obtained by classroom observation. If resources permit, it would be best to obtain this information by observation, sampling across multiple time periods.

C. FINDINGS AND IMPLICATIONS FOR MEASURING CLASSROOM STAFF CHARACTERISTICS, ADMINISTRATION AND SUPPORT SERVICES, AND PARENT INVOLVEMENT

1. Summary of Findings on Staff Characteristics

OSECP examined the influence of staff characteristics on the quality of care and found that teachers who had higher levels of education (as measured by the level of degree or certification) spent more time interacting with children, teaching children, and teaching language/number concepts. They also used more developmentally appropriate activities. In addition, children in classrooms led by more-highly educated and trained teachers spent more time engaged in activities with goals. In Head Start

classrooms, however, teacher education lacked the same degree of influence. In Head Start classrooms, teachers tended to rely more on training opportunities (including CDA certification) compared with teachers in other classrooms. The finding that the "level of teacher education" and the "level of specialized education or training in early childhood education" were highly related indicates that it may be possible for teachers to realize some of the benefits of higher education by attending the types of preservice and in-service training that Head Start provides, including CDA certification. The CSCR study found that classrooms whose caregivers had more training in early childhood education were rated higher on developmentally appropriate practices.

In addition to examining the relationship between staff characteristics and quality of care, the NCCS reached four conclusions related to staff characteristics: (1) child care teachers generally have attained high levels of formal education but earn relatively low wages (as a reflection of this, staff turnover rates nearly tripled from 1977 to 1988); (2) teachers tend to provide higher-quality care and services to children, as measured through "appropriate and sensitive caregiving" on the Arnett Scale, when they have had more formal education, received more early childhood training at the college level, and earn higher wages and benefits; (3) children were more competent in social and language development when they attended centers with lower staff turnover; and (4) higher-quality centers paid staff better, and also had a better adult work environment, lower teacher turnover, and a more-highly educated and trained staff.

The PCCS reached several key conclusions that relate to teachers, caregivers, and other staff members: (1) approximately half of center-based teachers have graduated from college, and nearly all have received child-related training (teachers in public-school-based programs are more likely to have a college degree); (2) the annual rate of teacher turnover is 25 percent; (3) given their level of education, preschool teachers earn very low wages, although teachers in public-school-based programs earn significantly higher wages than teachers in other types of programs; and (4) the racial/ethnic

composition of the staff generally reflects the race/ethnicity of the children in care. The HSFCC study is one of the few studies to find only a weak relationship between the level of teachers' educational attainment and classroom quality, as measured by the mean ECERS score.

The CQCO study demonstrated that many staff characteristics are important correlates of classroom quality. After examining educational level, experience, relevant training, wages and benefits, turnover (or staff tenure), and leadership ability, the CQCO study concluded that the quality of children's classroom experience (measured by the ECERS) was higher when staff members had a college education (bachelor's degree) and staff turnover was less frequent. Wages, education, and training all distinguished poor-quality centers from mediocre-quality ones. Staff working in nonprofit centers, compared with those in for-profit centers, typically earned higher wages; among nonprofit centers, church-affiliated centers typically had staff with less training and education and paid lower wages.

2. Summary of Findings on Administration and Support Services

The NCCS study demonstrated that (1) higher-quality classrooms shared the following attributes related to their program's location, administration, and support services: better adult work environments, nonprofit status, accreditation through the NAEYC, and location in states with higher standards for quality; (2) compared to their for-profit counterparts, nonprofit centers (non-church-affiliated) received a smaller percentage of revenues from parent fees and a larger percentage from government funds and served a higher percentage of subsidized children; (3) charitable funding represented approximately seven percent of child care center revenues; (4) nonprofit centers (both those that did and did not receive government funds) provided more developmentally appropriate care than other center types; (5) parents paid higher fees in centers with more appropriate and higher-quality caregiving; and (6) low-income children generally attended higher-quality centers than middle-income children, largely because of subsidies that helped defray the costs.

The PCCS generated a number of important insights into the administrative and support service characteristics of child care providers: (1) approximately 13 percent of all center-based programs offer physical examinations, and approximately 40 percent offer testing for cognitive and social development; (2) nearly 75 percent of all Head Start programs provide physical examinations, and nearly all Head Start programs offer cognitive developmental testing; (3) approximately 85 percent of center-based providers charge some level of parent fees; (4) parent fees as a proportion of total revenues have increased since the late 1970s, while government funds as a proportion of total revenues have declined; and (5) among providers that charge parental fees, higher-quality programs charge higher fees.

The CQCO study examined a variety of important characteristics related to the financial management and administrative characteristics of child care centers. It controlled for the following variables in its analysis of the costs and quality of center-based care: (1) center auspice (nonprofit, for-profit), (2) sponsorship (public, independent, church-affiliated), (3) state-licensing standards, (4) accreditation standards, (5) regional variation in standards, (6) composition of revenues and expenses, (7) labor and facilities costs (including forgone wages of child care staff), (8) cash and in-kind contributions, (9) profit margins, (10) fee schedules, (11) administrative leadership and experience, (12) age mix of children served, and (13) proportion of subsidized children served.

The CQCO study found state licensing standards to be important; states with higher licensing standards had a smaller proportion of poor-quality centers. Centers required to meet higher standards typically paid higher wages, provided better benefits, and offered a higher quality of care than centers that did not meet regulatory standards. In addition, accredited centers typically provided a higher level of quality care.

High-quality centers shared the following characteristics: higher costs and revenue per "child hour," more donated resources and outside funding, and lower parent fees as a proportion of total

revenues. In their CQCO study, the Cost, Quality, and Child Outcomes Study Team (1995) estimated that centers would need to spend an additional 10 percent to improve their quality of care from "mediocre" to "good." They also examined the level of the center administrator's experience and found that, all else held constant, an increase in experience is associated with higher quality care.

3. Summary of Findings on Parent Involvement

The PCCS produced several findings concerning the extent of parents' involvement in the early care and education programs of their children. It found that (1) almost three-quarters of the centers reported regular teacher-parent meetings; (2) approximately one-quarter of the centers have staff members who make home visits to meet with parents; and (3) more than one-quarter of all centers reported that parents serve as classroom volunteers, while close to 90 percent of Head Start programs reported that parents serve as classroom volunteers. Parent involvement depends on the nature of the activity. Nearly half of the centers reported that parents participate in fund-raising activities, whereas fewer than one-quarter reported parent involvement in budget review. Only 16 percent reported parent participation in staff selection, but approximately two-fifths reported parent attendance at workshops and classes. Head Start programs were much more likely than other center-based programs to involve parents in these ways.

The OSECP concluded that, when the level of parent involvement was high, overall classroom quality was higher, and teachers were more involved with children and gave them more individual attention. High parent involvement indicated that there was a 75 percent participation rate in at least three of the following parent activities: volunteering in the classroom, volunteering on field trips, making materials, sharing skills, attending parent/teacher conferences, attending social events, and recruiting families for the program. A greater percentage of Head Start classrooms (compared with the other types of classrooms) involved a greater percentage of parents in each of the seven parent activities, and a smaller percentage of Head Start classrooms had activities in which no parents

participated. The study acknowledged that in-person observation of children and parents would enhance the understanding of how parent involvement affects child development.

The CCDP evaluation found that CCDP mothers (compared with control group mothers) were (1) less likely to report attitudes that can be linked to child abuse and neglect; (2) more likely to have higher expectations for their child's success in school; (3) more likely to report spending time with their child and to report that resident fathers spent more time in daily activities with the child; and (4) more likely to act in a responsive, sensitive, and developmentally appropriate manner toward the child.

4. Implications for Future Research

Many of the attributes measured in these three dimensions of the program environment are important in Head Start program operations. Furthermore, the measurement of staff characteristics, administration and support services, and parent involvement can be readily accomplished using telephone or in-person interviews. Thus, data on these aspects of Head Start children's program environments would be a valuable part of future research. The findings of these studies suggest that consideration should be given to measuring the following attributes:

- Level of educational attainment of classroom teachers and aides
- Extent of staff specialized training in child development and early childhood education
- Turnover rates among teaching staff (both teachers and aides)
- Wages or salaries of classroom staff
- Racial/ethnic composition of classroom staff in relation to the race/ethnicity of the children
- Parent participation in the program for children
- Parent involvement in parent education activities
- Parent involvement in program decision making

- Supportive relationships among parents
- Parent-teacher relationships
- Relationship of teacher and parent values to teaching and parenting practices
- Qualifications of program director/administrator
- Staff satisfaction with the work environment and input into program decisions
- Administrative characteristics such as sponsorship, accreditation, and licensing

Some administrative variables found to be linked to classroom quality in studies of child care and non-Head Start preschool programs are not applicable to Head Start studies. For example, parent fees and child subsidies are not relevant variables, since Head Start parents pay no fees. Some aspects of program costs (such as staff wages) may be important, however. Studies should measure aspects of parent involvement. Although its association with the quality of classroom dynamics or structure is weak, parent involvement is central to the goals of Head Start and many other early childhood programs. It is important to learn, using a larger and more representative sample than in the OSECP, whether different types of parent involvement are related to (1) program quality, and (2) children's development and learning.

D. SUMMARY

The findings from the Head Start and early childhood studies reviewed here suggest that future research studies should give priority to measuring certain aspects of classroom and program environments. In terms of classroom dynamics, it is particularly important to measure global classroom quality, caregiver behavior, and instructional practices indicative of developmental appropriateness. In terms of classroom structure, priority should be given to measuring group sizes and child-staff ratios in classrooms. Finally, in terms of staff characteristics, administration and support services, and parent

involvement, we suggest a number of variables that would be important to measure and would serve as valuable additions to future research efforts.

IV. RECOMMENDED FRAMEWORK FOR ASSESSING EARLY CHILDHOOD PROGRAM ENVIRONMENTS

In this paper, we selectively reviewed research on five dimensions commonly used to describe features of early childhood programs that may influence the development and well-being of the enrolled children:

1. Classroom dynamics
2. Classroom structure
3. Classroom staff characteristics
4. Administration and support services
5. Parent involvement

We selected studies that focused on Head Start programs, or programs serving a similar low-income population, and concentrated on describing instruments that either have been used in Head Start programs or clearly would be appropriate for them. The studies we reviewed in Chapters II and III are part of a large body of research that now exists on measuring program environments and an increasingly large number of studies of program quality. The findings and measurement procedures of these studies have important implications for decisions about measuring program environments in future Head Start and other early childhood program research: what to measure, and how to conduct the measurements.

These studies demonstrate that (1) it is important to measure children's program environments because variations in a number of quality dimensions are associated with important aspects of children's development and well-being, (2) multiple dimensions are required to assess adequately the full spectrum of program quality, and (3) methodologies for assessing the quality of program environments now exist that can be implemented economically on a large scale.

Although we could use hundreds of variables to describe fully children's experiences in early childhood programs, research demonstrates that researchers can obtain a reliable and valid portrait of the most important experiences by using a few carefully chosen measures. As Scarr et al. (1994, p. 132) have noted, research "does not require exhaustive inventories but reliable and valid measures of those aspects of quality that can be assessed with efficient and inexpensive measurement." This conclusion is supported by the relatively strong correlations observed among many of the global measures and between the global and micro-observation measures. The conclusion of Scarr et al., however, applies to the limited set of variables they studied: the ECERS (or the infant-toddler version), the Assessment Profile, child-staff ratio, group size, teacher training, teacher education, highest wage, and staff turnover. To address the large number of program issues related to Head Start programs, variables representing all five dimensions reviewed here would have to be included.

We summarize our recommendations in Table IV.1 and discuss them in the following sections. All of the observational data can be collected by trained observers spending a single three- to four-hour observation period in each classroom. All of the observation instruments we recommend have been used in multisite studies in which large numbers of observers have been trained to meet reliability standards. The items recommended for inclusion in parent, teacher, and director interviews have been used in large-scale telephone and/or in-person interview formats with national samples, as summarized in Chapters II and III.

A. CLASSROOM DYNAMICS

By selecting two or three widely used global measures, researchers will be able to assess key attributes of classroom dynamics that are commonly used to indicate quality programming for children and for which evidence suggests at least an association (if not a causal relationship) with children's development and well-being. We recommend the ECERS because it is the most widely used measure of global quality and yields scores that have been correlated with child outcomes in many studies. As

RECOMMENDED EARLY CHILDHOOD CLASSROOM AND PROGRAM ENVIRONMENT VARIABLES AND MEASURES

Variables	Measures
Classroom Dynamics	
Global Quality Developmentally appropriate activity Appropriate caregiving	Subscales of Early Childhood Environment Rating Scale
Instructional Practices Developmentally appropriate Developmentally inappropriate	Adaptation of Classroom Practices Inventory (modified as Developmental Practices Inventory)
Caregiver Behavior Warm/responsive (or attentive and encouraging) Harsh/punitive (or harsh and critical) Detached	Subscales of Arnett Scale of Caregiver Behavior
Classroom Structure	
Child-Staff Ratio	Observational counts
Group or Classroom Size	Observational counts
Safety and Health Safety of classroom Safety of supplies and materials Teacher preparation to respond to accidents and emergencies Encouragement of personal hygiene Teacher responsibility for basic health care	Subscale of Assessment Profile
Classroom Staff Characteristics	
Staff Education and Training Description of degrees received Receipt of Child Development Associate credentials Types of training classes and workshops in child development and other relevant areas	Teacher interview
Staff Turnover Rate Number of lead and other teachers who have left the program in past 12 months as a proportion of all teachers	Program director interview
Wages and Salaries Wages/salaries of classroom staff members by role Volunteer classroom staff	Program director interview

Variables	Measures
Racial/Ethnic Composition of Classroom Staff and Volunteers in Relation to Racial/Ethnic Composition of Children	Program director interview
Administration and Support Services	
Qualifications of Program Director/Administrator Degrees received Years of experience Types of prior experience Relevant training courses	Program director interview
Work Environment Staff satisfaction with different working environment characteristics Involvement by teachers and staff in program management and program decision making	Teacher interview and program director interview
Administrative Characteristics Sponsor of program Accreditation (for example, by NAEYC)	Program director interview
Schedule Hours per day Days per week Weeks per year	Program director interview
Parent Involvement	
Parent Participation in Classroom Volunteering in classroom Classroom visiting	Parent interview and teacher interview
Parent Involvement in Parent Education Activities Participation in workshops and programs Home visits	Parent interview
Parent Involvement in Decision Making Participation on program committees	Parent interview and program director interview
Parent Approach to Child Development in the Home Parent-child interactions Developmentally appropriate activities and materials Parenting skills and disciplinary style Parent attitudes toward and expectations of children	Parent interview
Supportive Relationships Among Parents	Parent interview
Staff-Parent Interaction	
Teacher-parent meetings and interactions	Parent interview and teacher interview
Relationship of teacher values and practices to parent values and practices	Parent interview, teacher interview, and program director interview

suggested by Scarr et al. (1994), researchers could consider selecting a subset of ECERS items, focusing on two dimensions that Whitebook et al. (1989) found important: (1) developmentally appropriate activity, and (2) appropriate caregiving. We also recommend using an adaptation of the CPI. This will enable researchers to differentiate the aspects of classroom dynamics that constitute curriculum activities. We believe the CPI requires further adaptations (beyond those used in the OSECP and CSCR studies) for two reasons: (1) the early childhood field currently is reconsidering the concept of developmentally appropriate practices (Mallory and New 1994), and (2) observers must be able to make reliable ratings during observation periods of reasonable length (for example, between two hours and one-half day per classroom). Using the Arnett Scale, researchers will be able to measure aspects of teacher behaviors (in interaction with children) that are not included in the other global measures. The important Arnett scales are (1) "warmth/ responsiveness" (or "attentive and encouraging"), (2) "harsh/punitive" (or "harsh and critical"), and (3) "detached."

B. CLASSROOM STRUCTURE

At no additional cost, while completing these global ratings, observers can also count the number of adults and children at several points during the observation period so that they can calculate group sizes and child-staff ratios. If more details on children's groupings and activities are desired, researchers could create a simplified version of the PCS. We also recommend using a subscale from the Assessment Profile to measure classroom features relating to safety and health. This instrument requires a relatively small amount of time to train observers, provides objective scores on safety and health characteristics, and allows researchers to identify programs that score below an acceptable standard of quality in safety and health.

C. STAFF CHARACTERISTICS

We recommend gathering data on staff characteristics by including questions on this dimension in both the teacher and program director interviews. The studies discussed in Chapters II and III included questions researchers can draw from to measure a variety of staff characteristics. We recommend the collection of information on staff and teacher education and training (including types of relevant degrees received and the receipt of CDA credentials and other relevant training). To collect the most current and accurate information, we suggest collecting these data through teacher interviews, instead of through program director interviews.

In a program director interview, we recommend asking a number of questions that will permit studies to report (1) staff turnover rate (or the percentage of teachers who have left the program in the past year), (2) average wages and/or salaries of teachers and staff and the percentage of classroom staff who are volunteers (adjusting for time spent in the classroom), and (3) racial/ethnic composition of classroom staff in relation to the racial/ethnic composition of the children that the program serves. Since both staff turnover and staff wages/salaries are key indicators of higher-quality programs, they are important variables to measure. Average and median figures will permit researchers to assess the distribution of wages and salaries among paid staff, and a count of the number of volunteers will allow assessments of the extent to which a program relies on volunteer labor.

D. ADMINISTRATION AND SUPPORT SERVICES

As with classroom staff characteristics, we recommend using survey interview questions, primarily in a program director interview, to gather information on key facets of administration and support services. As we discussed in Chapters II and III, previous studies have developed questions for measuring program administration and support services. First, we suggest that information on the qualifications of the program director or administrator be collected by directly asking the directors themselves in the interviews. The most meaningful qualifications include (1) number and type of

degrees received; (2) years of experience in the early childhood field and related fields; (3) types and years of other, prior experience; and (4) relevant training courses taken.

To examine the climate of the program environment and the involvement of staff in the overall program, we suggest measuring two key aspects of the work environment: (1) staff's relative satisfaction with a variety of aspects of the working environment, and (2) the level of involvement by teachers and other staff members in program management and decision making. We advise including questions on these aspects of the work environment in both the teacher and program director interviews to account for any discrepancies between the different viewpoints. For program administrative characteristics, we feel that the most important variables to measure are the sponsorship of the program and types of accreditation that it has received (for example, by NAEYC). These variables capture variation among different programs and can be easily collected through a program director interview. Data on the program's schedule also can be obtained through a program director interview.

E. PARENT INVOLVEMENT

Active involvement by parents in their children's early care and education, both in the home and through participation in the daily program, helps to reinforce the efforts of teachers and staff members. As with the classroom staff and administration and support service characteristics discussed earlier, an extensive portrayal of parent involvement in Head Start and other programs can be collected using parent, teacher, and program director interviews. As we discussed in Chapters II and III, previous studies have developed questions for measuring different types of parent involvement in Head Start. We recommend measuring a number of key elements of parent participation. First, questions on both the parent and teacher interviews can be used to collect information on the frequency with which parents visit and volunteer in the classroom. Similarly, we recommend collecting more detailed information on participation in educational activities designed for parents, including workshops, programs, and home visits. Such information can be most effectively gathered by querying parents,

since they represent the source of the most accurate information on attendance in, and satisfaction with, the activities. In addition to involvement in parent education activities, it is important to understand the level of parent involvement in program decision making. Therefore, we suggest asking both parents and program directors about the level of parent participation on program committees.

To complement the data on parent participation in the classroom and program, we recommend collecting data on the quality of parents' approach to child development in the home, their relationships with other parents, and their interactions with teachers and staff members. We recommend that a set of questions be asked of parents to better understand their relationship to and interactions with their child in the home. Such questions should measure (1) the level and types of parent-child interactions, (2) the use of developmentally appropriate activities and materials in the home, (3) parenting skills and disciplinary style, and (4) parent attitudes and expectations of children. To collect information on parent relationships with other parents, we suggest asking parents a question that characterizes the supportive nature of their relationships with other parents. To gather data on staff-parent interaction, we suggest asking both parents and teachers about the types and frequency of their meetings and interactions. Finally, we recommend that a question be asked of parents, teachers, and the program director about their perceptions of the association between teacher and parent values and practices. By asking such a question in all three interviews, researchers can measure the variance in perspectives and gauge the level of consistency between teacher values and practices regarding child development and teaching, as well as parent values and practices regarding child development and parenting.

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APPENDIX A

SUMMARY OF SELECTED STUDIES OF HEAD START AND OTHER EARLY CHILDHOOD PROGRAM ENVIRONMENTS

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1. Observational Study of Early Childhood Programs (OSECP)

The OSECP (Layzer et al. 1993) examined Head Start and other center-based programs that serve low-income 4-year-old children. The study was designed to (1) define and measure the quality of early childhood programs, (2) determine the ways in which classrooms and staff members influence quality, and (3) identify the ways in which overall quality relates to classroom dynamics. A total of 119 early childhood programs were randomly selected from five sites for the study. The five sites were chosen to ensure a level of geographic and regulatory diversity among programs. Observers spent one week in each classroom during spring 1991 observing and coding the program environment, including classroom dynamics. The OSECP used all of the observation instruments discussed in this paper (the ECERS, Assessment Profile, Arnett Scale, CPI, and PCS). In addition, Layzer et al. developed and used the Abt Adult-Focused Observation, a micro-observation technique, to characterize classroom interactions in more detail.

2. California Staff/Child Ratio (CSCR) Study

The CSCR study examined quality in early care and education programs in California by determining whether or not the 8:1 child-staff ratio standard could be increased to either 9:1 or 10:1 without diminishing program quality (Love, Ryer, and Faddis 1992).[4] Observations were conducted in 112 classrooms operated by state-funded child care service agencies that served subsidized 3- to 5-year-old children. These classrooms were randomly assigned to a new ratio of 8:1, 9:1, or 10:1. Observers spent four half days in each classroom collecting data during fall 1990 and spring 1991.

[4]Although the CSCR study used the term "staff/child ratio," we use the term "child-staff ratio" in this paper to be consistent with more common usage.

3. National Child Care Staffing (NCCS) Study

Influenced by the high rate of staff turnover and the notion that well-trained and consistent staff promote quality child care, the NCCS study examined work environments for center-based teachers and staff members to determine how work environment affects the quality of care (Whitebook et al. 1989). In terms of classroom dynamics, the study sought to examine (1) the relationship among characteristics of teachers and staff members, features of the work environment, and measures of the quality of child care provided; and (2) the impacts, if any, that standards, accreditation status, auspice, and types of families served have on the quality of care provided. The study used a random sample of 227 child care centers in five metropolitan areas to examine staffing issues in child care centers. The centers served children of different ages and from different family income levels. Data were collected primarily through classroom observations and staff interviews between February and August 1988. The study used two of the instruments discussed earlier (the ECERS and the Arnett Scale).

4. Cost, Quality, and Child Outcomes in Child Care Centers (CQCO) Study

The recently released CQCO study examined the relationship between child care costs, the quality of care, and child development (Cost, Quality, and Child Outcomes Study Team 1995). The study looked at a series of issues involving early care and education: (1) how market competition affects the cost and quality of care; (2) how regulations, standards, and program characteristics influence the cost and quality of care; (3) how the dimensions of the classroom and program environment either improve or diminish the quality of care; and (4) how different aspects of the quality of care influence children's cognitive and social-emotional development. Using a random sample, stratified by both auspice and state-licensing standards, Cost, Quality, and Child Outcomes Study Team 1995 selected a total of 50 nonprofit and 50 for-profit centers per state in California, Colorado, Connecticut, and North Carolina for the study. From each center, two classrooms were randomly selected and a total of 826 children were observed in the classroom setting. Observations were conducted during spring 1993 and child

assessments in summer 1993. While the findings cannot be generalized to the entire population of providers in the United States, the centers seem to reflect the national population of licensed centers offering full-time care to infants, toddlers, and preschoolers.

5. Head Start Family and Classroom Correlates Outcomes (HSFCC) Study

The HSFCC study examined 145 Head Start children in 32 classrooms to investigate (1) how classroom quality affects child development outcomes, specifically controlling for the level of developmental stimulation that a child receives in the home environment; and (2) how teacher education, experience, and attitudes relate to classroom quality (Bryant, Burchinal, Lau, and Sparling 1994). More than 85 percent of Head Start classrooms in one southern metropolitan area agreed to participate in the study. The sampling frame included a relatively even distribution of urban, suburban, and rural classrooms. Four children from each classroom, two boys and two girls, were randomly chosen to participate in the study, and nearly 70 percent of those contacted agreed to participate. Classroom observations were conducted during the 1990-1991 and the 1991-1992 school years to collect information on classroom dynamics, among other variables.

6. Profile of Child Care Settings (PCCS) Study

The Department of Education commissioned the PCCS study to collect descriptive information on the population and characteristics of formal early care and education programs (Kisker et al. 1991). Information was obtained through computer-assisted telephone interviews with a nationally representative sample of child care center directors and regulated home-based providers of early care and education programs. The PCCS was designed to (1) collect national data on the availability and characteristics of early care and education options available to parents, and (2) examine the characteristics of early care and education settings that have been associated with child care quality.

The sample of 2,672 programs included Head Start, regulated home-based, public-school-based, and other center-based programs. The interviews were conducted during late 1989 and early 1990.

7. National Transition Study (NTS)

Through a combination of surveys and site visits, the NTS investigated how public schools help children make the transition to kindergarten and how they can help to develop preschool-kindergarten continuity (Love, Logue et al. 1992). A stratified random sample of 1,003 public school districts containing kindergartens was selected. High-poverty-level districts and districts with large enrollments were oversampled. Up to two schools with kindergarten classes were then randomly sampled from each district, resulting in a total sample of 1,662 schools. Self-report mail surveys were conducted with both the districts and the schools between November 1989 and March 1990; site visits were conducted during spring 1990 to eight schools serving primarily disadvantaged students.

8. Comprehensive Child Development Program (CCDP) Evaluation

The Administration on Children, Youth and Families (ACYF) commissioned a national five-year impact evaluation of the CCDP. More than 30 CCDP projects, located across the country, provide a wide set of comprehensive services (including early child care and developmental services) for low-income families. Case managers help to coordinate the provision of services (including comprehensive social services for infants and young children to meet developmental needs, as well as services to help parents develop effective parenting skills and achieve economic and social self-sufficiency) from different providers within a community. Continuous assistance and services are provided until the children reach elementary school. The evaluation, which includes 21 of the original 24 CCDP projects, randomly assigned a total of 4,400 project families to either the CCDP treatment group or a control group. Data for the impact evaluation were collected from fall 1991 through fall 1994. The two-year interim report focused on how the CCDP affects child development and maternal outcomes, such as

economic self-sufficiency, life management skills, and psychological and physical status (St. Pierre et al. 1994).

9. Head Start Family Service Center (FSC) Demonstration

The FSC demonstration projects serve primarily low-income children and their families and provide a set of comprehensive services in education, health, parent involvement, and social services (Abt Associates 1992). The Administration on Children, Youth, and Families (ACYF) sponsored the demonstration to learn about ways in which Head Start programs address the interrelated problems of illiteracy, substance abuse, and unemployment. Head Start families in 13 FSCs (which represented more than 30 percent of the total number of FSCs) were assigned to either a treatment group or a control group. Random assignment and interviewing were implemented between spring 1992 and spring 1994.

The demonstration will ultimately be evaluated in terms of a variety of outcomes that describe the program's impact on children and families, including their economic and social behaviors and progress, service utilization, and relationship to the community.

10. Even Start Family Literacy Program Evaluation

The Even Start family literacy programs serve children and families by providing a set of services that help parents to support the educational development of their children. Even Start projects currently serve more than 10,000 families across the country and are designed to provide a comprehensive and integrated set of services relating to three areas: (1) early childhood education, (2) adult basic skills and literacy, and (3) parenting education. The Department of Education is sponsoring the national evaluation of the Even Start family literacy programs to determine the impact of Even Start on outcomes relating to early childhood, adult, and parenting education (St. Pierre, Swartz, Murray, Deck, and Nickel 1993). For the in-depth study, five Even Start projects all implemented a random

assignment process by assigning potential participants to either the Even Start treatment group or a control group. The study covered parts of four school years from 1990 to 1993.

11. Job Opportunities and Basic Skills (JOBS) Training Program Evaluation

The JOBS training program created under the Family Support Act of 1988 intends to help AFDC recipients increase their educational attainment and job training and, in so doing, increase their employment, earnings, and economic self-sufficiency. JOBS requires nearly all AFDC adults to participate and finances employment and training services, as well as child care assistance. The longitudinal JOBS evaluation follows approximately 55,000 AFDC recipients and applicants from seven sites who have been randomly assigned to one of three groups: (1) the human capital development treatment group, (2) the labor force attachment treatment group, or (3) the control group. The evaluation is examining how JOBS services and child care assistance affect parents and their children (Manpower Demonstration Research Corporation and Child Trends, Inc. 1992; and 1993). Data collection began in spring 1992 and will continue, to some degree, through 1996. Two smaller studies are embedded within the larger JOBS evaluation: (1) the child outcomes substudy, and (2) the JOBS observational substudy. The child outcomes substudy is following approximately 3,000 families in three of the seven sites and examining the effects of the JOBS intervention on children's cognitive development, social competence, adjustment, and health and safety. The observational substudy involves videotaping mother-child interactions in approximately 370 families.

Information on mothers' child care arrangements is being gathered through parent interviews in the child outcomes substudy. Parents are being asked to assess several aspects of their child's care arrangement, including the type of arrangement, changes in the arrangement, cost of the care, level of subsidization, group size, and staff characteristics. Parents are also assessing the educational attainment and child-related training of their child's caregiver. These variables are being used in the

JOBS evaluation and the child outcomes substudy to determine, among other things, how child outcomes differ for children with differing child care arrangements.

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APPENDIX B

DESCRIPTIONS OF OBSERVATIONAL INSTRUMENTS

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EARLY CHILDHOOD ENVIRONMENT RATING SCALE (ECERS)

Developer/Date: T. Harms and R.M. Clifford (1980)

Description: 37-item, seven-point rating scale on the quality of the classroom, organized in terms of personal-care routines of children; furnishings and display for children; language and reasoning experiences; fine and gross motor activities; creative activities; social development; and adult needs.

Each item is scored 1 to 7, "Inadequate" to "Excellent," with descriptions provided for ranks 1, 3, 5, 7.

Purpose: To provide extensive descriptive information on the classroom and to make complex judgments on the quality of the environment. Highest scores are awarded on the basis of multiple components: caregiver behavior, use of materials, types of materials, and arrangement of activities and materials.

Items and definitions of ranks are generated from research, performance indicators of quality day care and early childhood programs, and input from practitioners.

Administration and Training: Ratings are based on two to three hours of observation of a classroom. Observers may also need to obtain information from schedules and teachers to complete the scale.

Developers state that the scale can be used by persons with a "practical acquaintance with early childhood settings and materials." Training materials available include Audio-Visual Kit, Viewer's Guide, Training Workbook. Training recommendations include two practice observations of at least two hours each in a classroom.

Scoring: Scores are computed by adding ranks (1 to 7) for items in each subscale. A total score is obtained by adding scores for all 37 items. Total score ranges from 37 to 259.

Relevant Environments: Preschool classrooms for children ages 3 to 6.

Psychometric Information:

Reliability:

1. Inter-rater reliability by class: in three tests, correlations were .90, .79, and .88 (approximately 20 classrooms were examined).

2. Inter-rater reliability by item: on 25 classrooms, rank order correlation on item was .93.

3. Internal consistency (Cronbach alphas) from the Observational Study of Early Childhood Programs (Layzer et al. 1993)

   Total score (37 items) = .92

   Subscores:
   - Personal care (5) = .64
   - Furnishings (5) = .72
   - Language (4) = .87
   - Motor activities (6) = .78
   - Creative activities (7) = .73
   - Social development (6) = .74
   - Adult needs (4) = .70

4. Factor analysis from the National Child Care Staffing study (Whitebook et al. 1989) examined two components, one relating to appropriate caregiving, the other to developmentally appropriate activity.

   Appropriate caregiving (52 percent of the variance)

   Factor loadings:
   - Greetings/departure = .63
   - Meals/snacks = .67
   - Nap/rest = .63
   - Diapering/toileting = .57
   - Understanding language = .79
   - Using language = .83
   - Reasoning = .77
   - Informal language = .78
   - Supervision--fine motor activities = .80
   - Supervision--gross motor activities = .68
   - Music/movement activities = .60
   - Schedule of creative activities = .71
   - Supervision of creative activities = .70
   - Free play = .78
   - Group time = .72
   - Tone of interactions = .79

Developmentally appropriate activities (48 percent of the variance)

Factor loadings:

- Furnishings for learning = .71
- Furnishings for relaxation = .70
- Room arrangement = .85
- Fine motor activities = .73
- Art activities = .74
- Block activities = .78
- Sand and water activities = .68
- Dramatic play = .66
- Space to be alone = .63
- Cultural awareness activities = .51

Validity:

1. Face validity: Items were reviewed and rated by day care experts; 78 percent of ratings indicated items were highly important.

2. Concurrent validity: ECERS rating of 18 classrooms correlated .74 with independent ratings by experts.

Examples of Previous Use:

Observational Study of Early Childhood Programs (Layzer et al. 1993)
National Child Care Staffing study (Whitebook et al. 1989)
Head Start Family and Classroom Correlates study (Bryant et al. 1994)
Cost, Quality, and Child Outcomes in Child Care Centers
(Cost, Quality, and Child Outcomes Study Team 1995)

ASSESSMENT PROFILE FOR EARLY CHILDHOOD PROGRAMS: RESEARCH MANUAL (ASSESSMENT PROFILE)

Developer/Date: M. Abbott-Shim, A. Sibley, and J. Neel (1992)

Description: The Assessment Profile is a structured observation guide designed to assist in self-assessment to improve the quality of early childhood programs. The research version includes 87 criteria organized into five scales:

- Learning environment (17 criteria)
- Scheduling (15 criteria)
- Curriculum (22 criteria)
- Interacting (15 criteria)
- Individualizing (18 criteria)

The criteria, or items, represent observable procedures, behaviors, and records that exemplify a set of standards for classroom practices. Criteria are scored dichotomously as either "yes" or "no."

Purpose: To determine whether program characteristics indicative of quality are present.

Administration and Training: Information to clarify observations, documentation, and procedures is obtained from three sources: (1) observation, (2) review of documentation, and (3) staff reports or teacher interviews. Training time is estimated to be approximately 10 hours. One observer can collect data for three classrooms in one day. The manual is available with instructions for administering the Assessment Profile.

Scoring: In coding, each of the 87 criteria on the checklist is coded as Yes/No. In scoring, the number of criteria scored as "Yes" are totaled for each scale.

Relevant Environments: The Assessment Profile is intended for assessment of early childhood programs. Versions are available for use with infant classrooms (for children from birth to age 2) and school-age classrooms (for children ages 5 to 10 who attend another school and participate in before- and after-school care).

Psychometric Information:

Reliability:

1. Internal consistency (Cronbach alphas) are reported in the Research Manual:

   Subscores:

   Learning environment = .87
   Scheduling = .79
   Curriculum = .87
   Interacting = .98
   Individualizing = .97

Validity:

Authors present criterion related validity with the Early Childhood Environment Rating Scale total scores of .64 to .74 in recent studies.

Examples of Previous Use:

Observational Study of Early Childhood Programs (Layzer et al. 1993)[5]
California Staff/Child Ratio study (Love, Ryer, and Faddis 1992)[1]

[5]Note: Used an earlier version: Abbott-Shim and Sibley (1987).

ARNETT SCALE OF CAREGIVER BEHAVIOR (ARNETT SCALE)

Developer/Date: J. Arnett (1989)

Description: Rating scale of caregiver behavior consisting of 26 items organized under five areas:

6. Positive relationships
7. Punitiveness
8. Detachment
9. Permissiveness
10. Prosocial interaction

Purpose: To rate the emotional tone, discipline style, and responsiveness of teachers and caregivers in a classroom. The items focus on the emotional tone and responsiveness of the caregiver's interactions with children. The scale does not address issues of curriculum or other classroom management issues (such as grouping or flow of activities).

Administration and Training: Coding was based on a day of observation of a classroom in the National Child Care Staffing study (Whitebook et al. 1989). The scale was coded several times during the day (morning, late morning, afternoon) after a specified period of observation.

Scoring: Total score computed by summing ranks (1 to 4) across 26 items. Ratings on each item range from 1 = "Not at all characteristic of the caregiver" to 4 = "Very characteristic of the caregiver."

Relevant Environments: Early childhood classrooms.

Psychometric Information:

Reliability:

1. Internal consistency (Cronbach alphas) from the Observational Study of Early Childhood Programs (Layzer et al. 1993)

Warmth/responsiveness rating (10) = .91
Harshness rating (7) = .90.

2. Factor analysis from the Observational Study of Early Childhood Programs identified four factors that, combined, accounted for 60 percent of the variance:

   - Positive, warm/responsive behavior (38 percent)
   - Harsh, punitive behavior (12 percent)
   - Detachment (6 percent)
   - Firm, controlling behavior (5 percent)

3. In the National Child Care Staffing study (Whitebook et al. 1989), factor analysis showed three factors that accounted for 60 percent of the variance: (1) sensitivity, (2) detachment, and (3) harshness. In the California Staff/Child Ratio study (Love, Ryer, and Faddis 1992), factor analysis showed four factors that accounted for 60 percent of the variance: (1) attentive and encouraging, (2) harsh and critical, (3) detached, and (4) controlling.

Examples of Previous Use:

Observational Study of Early Childhood Programs (Layzer et al. 1993)
California Staff/Child Ratio Study (Love, Ryer and Faddis 1992)
National Child Care Staffing Study (Whitebook et al. 1989)
Cost, Quality, and Child Outcomes in Child Care Centers (Cost, Quality, and Child Outcomes Study Team 1995)

CLASSROOM PRACTICES INVENTORY (CPI)

Developer/Date: Layzer et al. (1993) adaptation of the Classroom Practices Inventory (Hyson, Hirsh-Pasek, and Rescorla 1990), also referred to as the Developmental Practices Inventory.

Description: 30-item rating scale assessing the curricular emphasis of early childhood programs:

- 15 items describe "developmentally appropriate" practices
- 15 items describe "developmentally inappropriate" practices

The first 20 items are the 10 appropriate and 10 inappropriate items from the original CPI. Ten new items, also taken from the NAEYC guidelines, were added by Goodson (1990). Six emotional-climate items from the original CPI are not included in the Goodson adaptation.

The rating scale is based on NAEYC's guidelines for Developmentally Appropriate Practices (1987) for 4- and 5-year-olds. The guidelines suggest clearly contrasting classroom practices, which were the basis for CPI items.

Purpose: To classify classroom and curriculum practices, teacher behaviors, children's activities, and teacher-child interactions are rated as developmentally appropriate or inappropriate. Developmentally appropriate practices emphasize direct experiences, concrete materials, child-initiated activity, social interaction, and adult warmth.

Administration and Training: Ratings based on several hours of direct observation.

In the Academic Environments study (Hyson, Hirsh-Pasek, and Rescorla 1989), 10 programs were visited twice within two weeks by observers with training and experience in early childhood. In addition, 48 day care settings were visited by students in early childhood courses; each program was observed for two and a half hours.

Training of student observers consisted of reviewing complete NAEYC guidelines, reviewing the items, and doing practice classroom observations.

Scoring: The score is based on a five-point scale for 30 items. Ratings on each item range from 1 = "Not at all like this" to 5 = "Very much like this." The total score is produced by summing item ratings (with negative items reversed). The possible range of scores is 30 to 150, with higher scores indicating more developmentally appropriate practice.

Relevant Environments: Early childhood programs for 4- and 5-year-olds.

Psychometric Information: 26-item CPI used in 207 observations of 58 programs, including a range of settings (Hyson, Hirsh-Pasek, and Rescorla 1990).

Reliability:

1. Internal consistency (Cronbach alphas)

   Appropriate program items (10) = .92
   Inappropriate program items (10) = .93
   Total program items (20) = .96
   Emotional climate (6) = .88
   Total appropriateness (26) = .96

2. Intercorrelations among items: all intercorrelations were highly significant. Appropriate and inappropriate program items correlated r = -.82. Emotional climate correlated with program focus, r = .81.

3. Factor analysis: four-factor solution, with first factor accounting for 53 percent of the variance. Results suggest that "developmental appropriateness" as conceptualized by the CPI may be viewed as a single factor.

4. Interobserver reliability: based on observations of 10 programs, exact interobserver agreement (to the same scale point) averaged 64 percent. Agreement within 1 scale point was 98 percent. Total CPI scores correlated .86 across pairs of raters.

Validity:

Concurrent validity: CPI scores were related to programs' community reputations as academic or play-oriented and unstructured and to the self-reported educational attitudes of the program teachers.

Examples of Previous Use:

Observational Study of Early Childhood Programs (Layzer et al. 1993)
California Staff/Child Ratio study (Love, Ryer, and Faddis 1992)
Study of Academic Environments in Early Childhood
(Hyson, Hirsh-Pasek, and Rescorla 1989 and 1990)

PRESCHOOL CLASSROOM SNAPSHOT (PCS)

Developer/Date: Ruopp et al. 1979; adapted by Layzer et al. (1993) and Love, Ryer, and Faddis (1992).

Description: Records a relatively static picture of the distribution of adults and children within activities at a particular point in time. The snapshot records (1) activities occurring (27 categories, including administrative, concrete/manipulative, symbolic, and active play), (2) child grouping patterns (small, medium, large groups), (3) frequency of activities, (4) adult interaction with groups, (5) teacher and aide responsibilities, and (6) child independence.

Purpose: To obtain detailed information on how children are grouped in a classroom, how the adults are distributed with respect to groupings of children, and the activities children are engaged in.

The activity categories include activities in which a preschool class might be routinely engaged during an ordinary day.

Administration and Training: Snapshot is completed at the beginning of each five minutes of observation of the caregiver. A snapshot is coded four times an hour, just before the caregiver-child interaction.

Scoring: Snapshots of a classroom can provide multiple scores:

- Overall frequency of particular activities
- Distribution of children in small, medium, or large groups
- Distribution of adults

Relevant Environments: Preschool classrooms.

Psychometric Information: None available; however, in the Observational Study of Early Childhood Programs, Layzer et al. found that the mean frequencies of individual activities and groupings calculated for the first full day of snapshot observation were not significantly different from the mean frequencies calculated for a full five days of snapshot observations.

Examples of Previous Use:

Observational Study of Early Childhood Programs (Layzer et al. 1993)
California Staff/Child Ratio study (Love, Ryer, and Faddis 1992)
Project Giant Step Evaluation (Jarvis 1989)

Listing of NCES Working Papers to Date

Please contact Ruth R. Harris at (202) 219-1831 (ruth_harris@ed.gov)
if you are interested in any of the following papers

Number	Title	Contact
94-01 (July)	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02 (July)	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03 (July)	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04 (July)	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-05 (July)	Cost-of-Education Differentials Across the States	William Fowler
94-06 (July)	Six Papers on Teachers from the 1990-91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
94-07 (Nov.)	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
95-01 (Jan.)	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02 (Jan.)	QED Estimates of the 1990-91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03 (Jan.)	Schools and Staffing Survey: 1990-91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95-04 (Jan.)	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95-05 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
95-06 (Jan.)	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95-07 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-08 (Feb.)	CCD Adjustment to the 1990-91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09 (Feb.)	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95-10 (Feb.)	The Results of the 1991-92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk
95-11 (Mar.)	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95-12 (Mar.)	Rural Education Data User's Guide	Samuel Peng
95-13 (Mar.)	Assessing Students with Disabilities and Limited English Proficiency	James Houser
95-14 (Mar.)	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15 (Apr.)	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95-16 (Apr.)	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17 (May)	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
95-18 (Nov.)	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01 (Jan.)	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-02 (Feb.)	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-03 (Feb.)	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
96-04 (Feb.)	Census Mapping Project/School District Data Book	Tai Phan
96-05 (Feb.)	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06 (Mar.)	The Schools and Staffing Survey (SASS) for 1998-99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07 (Mar.)	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-08 (Apr.)	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-09 (Apr.)	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998-99 SASS	Dan Kasprzyk
96-10 (Apr.)	1998-99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11 (June)	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12 (June)	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-13 (June)	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14 (June)	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-15 (June)	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96-16 (June)	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-17 (July)	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
96-18 (Aug.)	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
96-19 (Oct.)	Assessment and Analysis of School-Level Expenditures	William Fowler
96-20 (Oct.)	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21 (Oct.)	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96-22 (Oct.)	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96-23 (Oct.)	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24 (Oct.)	National Assessments of Teacher Quality	Dan Kasprzyk
96-25 (Oct.)	Measures of Inservice Professional Development: Suggested Items for the 1998-1999 Schools and Staffing Survey	Dan Kasprzyk
96-26 (Nov.)	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27 (Nov.)	Intersurvey Consistency in NCES Private School Surveys for 1993-94	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-28 (Nov.)	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
96-29 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30 (Dec.)	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-01 (Feb.)	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-02 (Feb.)	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-03 (Feb.)	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97-04 (Feb.)	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-05 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-06 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-07 (Mar.)	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-08 (Mar.)	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
97-09 (Apr.)	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97-10 (Apr.)	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993-94 School Year	Dan Kasprzyk
97-11 (Apr.)	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-12 (Apr.)	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97-13 (Apr.)	Improving Data Quality in NCES: Database-to-Report Process	Susan Ahmed
97-14 (Apr.)	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97-15 (May)	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-16 (May)	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns
97-17 (May)	International Education Expenditure Comparability Study: Final Report, Volume II, Quantitative Analysis of Expenditure Comparability	Shelley Burns
97-18 (June)	Improving the Mail Return Rates of SASS Surveys: A Review of the Literature	Steven Kaufman
97-19 (June)	National Household Education Survey of 1995: Adult Education Course Coding Manual	Peter Stowe
97-20 (June)	National Household Education Survey of 1995: Adult Education Course Code Merge Files User's Guide	Peter Stowe
97-21 (June)	Statistics for Policymakers or Everything You Wanted to Know About Statistics But Thought You Could Never Understand	Susan Ahmed
97-22 (July)	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
97-23 (July)	Further Cognitive Research on the Schools and Staffing Survey (SASS) Teacher Listing Form	Dan Kasprzyk
97-24 (Aug.)	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97-25 (Aug.)	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
97-26 (Oct.)	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
97-27 (Oct.)	Pilot Test of IPEDS Finance Survey	Peter Stowe
97-28 (Oct.)	Comparison of Estimates in the 1996 National Household Education Survey	Kathryn Chandler
97-29 (Oct.)	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Steven Gorman
97-30 (Oct.)	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Steven Gorman
97-31 (Oct.)	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Steven Gorman
97-32 (Oct.)	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questionnaires)	Steven Gorman
97-33 (Oct.)	Adult Literacy: An International Perspective	Marilyn Binkley
97-34 (Oct.)	Comparison of Estimates from the 1993 National Household Education Survey	Kathryn Chandler
97-35 (Oct.)	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
97-36 (Oct.)	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West