

I. CONTEXT/ENVIRONMENT

Special Education Teacher Quality

**What Are We Spending on Special Education Services in the
United States, 1999-2000?**

**Children With Disabilities in Low-Income Families: An Analysis
of Data From the ECLS-K**

**Use of the Developmental Delay Classification for Children
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Special Education Teacher Quality

Recent Federal legislation has been peppered with references to teacher quality and its importance in improving educational outcomes. The No Child Left Behind Act, which President Bush signed into law in January 2002, includes grants to assist public agencies in enhancing students' academic achievement by increasing teacher quality and the number of highly qualified teachers. In amending the Individuals with Disabilities Education Act (IDEA) in 1997, Congress reasserted its support for professional development activities to give teachers the knowledge and skills they need to help students meet challenging educational goals and lead productive, independent adult lives (§601(c)(5)).

Over the past 20 years, a consensus has gradually emerged that teacher quality is best measured by student achievement, and previous research shows that the quality of children's teachers significantly influences their achievement. In a Tennessee-based study, Sanders and Rivers (1996) found that, on average, the least effective teachers in one district produced annual gains of roughly 14 percentile points among low-achieving students, while the most effective teachers produced gains of 53 percentile points. Furthermore, they reported that the effects of teachers were long term: 2 years after having a particularly weak or strong third-grade teacher, student achievement was still affected. The researchers concluded that students with similar initial achievement levels have "vastly different academic outcomes as a result of the sequence of teachers to which they are assigned" (p. 6). Similar results have been documented in Dallas and Boston (Bain et al., as cited in Haycock, 1998; Jordan, Mendro, & Weerasinghe, 1997).

However, these studies leave many questions unanswered. They do not indicate what teacher practices, attitudes, or attributes account for differences in student outcomes. In addition, the studies have been conducted in regular education rather than special education. High-quality special educators may possess knowledge and skills not required of high-quality general educators. Moreover, because special education teachers often serve a supporting rather than a primary role in delivering instruction, their influence on student achievement may be indirect or intermingled with that of regular education teachers.

Study Methods

The Study of Personnel Needs in Special Education (SPeNSE), conducted by Westat under contract with the U.S. Department of Education's Office of Special Education Programs (OSEP), was designed to describe the quality of personnel serving students

with disabilities and the factors associated with workforce quality.¹ It included telephone interviews with a nationally representative sample of 358 local administrators and 8,061 service providers, including special and regular education teachers, speech-language pathologists, and special education paraprofessionals.² This module summarizes results from SPeNSE on special education teacher quality.

Before we can answer questions about the quality of the nation's special education teachers, we must first explore further what we mean by a high-quality teacher. Teacher quality is a highly complex construct. As such, it cannot be defined or measured through one or two variables. Rather, many different beliefs, attributes, and experiences, and the behaviors that result from those beliefs, attributes, and experiences, interact as indicators of teacher quality.

SPeNSE researchers used factor analysis to explore the extent to which the data reported by special education teachers supported previous theoretical and empirical work on teacher quality and to derive a teacher-quality measure. Factor analysis manipulates a large set of variables and groups them into a smaller number of factors that contain most of the information inherent in the original variables, making the data easier to analyze and interpret. In this analysis, LISREL was used to conduct a confirmatory factor analysis, meaning the factors were determined a priori.

Limitations of SPeNSE for Measuring Teacher Quality

It is important to note from the outset that there were several limitations for measuring teacher quality using the SPeNSE data. First, in regular education, strong verbal and math skills have been associated with student achievement. For example, in studies in Texas and Alabama (Ferguson, 1991; Ferguson & Ladd, 1996), higher scoring teachers were more likely than their lower scoring colleagues to produce significant gains in student performance, when teachers were assessed on a basic literacy test or the American College Test (ACT). While SPeNSE interviews included a few items on teachers' test participation and performance, specifically with regard to tests for certification or licensure, an insufficient number of special education teachers took those tests to include the items in the factor analysis. Furthermore, the missing data were not random. Because tests for certification have become more prevalent in recent years, teachers who took them had significantly fewer years of teaching experience than those who did not. This precluded entering teachers' years of experience and test performance in the same model. Consequently, we cannot speak to verbal ability specifically, or tested ability more generally, as a component of teacher quality.

¹ For more information on the SPeNSE study design and results, go to www.spense.org.

² SPeNSE data were weighted to generate national estimates.

Second, if growth in student achievement is the ultimate measure of teacher quality, the validity of the SPeNSE model can only be tested through a confirmatory analysis using a data set that contains relevant information on special education teachers and the achievement of the students they serve. The SPeNSE data set does not include student achievement data. As such, this analysis and its results should be considered exploratory. Despite its limitations, it may further the dialogue on ways to identify, prepare, and retain high-quality teachers. It represents a first step in the exploration of special education teacher quality. At the end of this module, plans for further research are described.

Correlates of Teacher Quality

Using the SPeNSE data on special education teachers, five teacher-quality factors were tested. They were:

- experience,
- credentials,
- self-efficacy,
- professionalism, and
- selected classroom practices.

Table I-1 includes a brief description of the variables included in each of the teacher-quality factors. At the end of this module, a table lists factor loadings for each variable and the amount of variance explained by the factor.

This next section presents descriptive information on the variables that were important in the factor analysis on special education teacher quality. This information provides a context for understanding the results of the factor analysis and the resulting factor scores. Where appropriate, we summarize previous research related to the relationship between the factor in question and student achievement.

Factor 1: Experience

Over the past 20 years, research has shown a consistent, positive relationship between teachers' experience and student achievement (Biniaminov & Glasman, 1983; Lopez, 1995; Murnane, 1981) at the individual, classroom, school, and district

Table I-1
Variables Included in the Five Teacher-Quality Factors

Factor 1: Experience. This factor included two variables—years teaching and years teaching special education. The factor loadings for the two experience variables are close to 1, which is very high. This means that the factor explains most of the variance.

Factor 2: Credentials. This factor included three variables: level of certification (none, emergency, certified out of field, fully certified for position); number of fields in which teachers were certified; and highest degree earned. In defining the credential factor, level of certification was most important. The variable that measured the number of fields in which teachers were certified was least important, with its variance largely unexplained.

Factor 3: Self-efficacy. This factor included three variables. The first was a scale on special education teachers' perceptions of their skill in completing a variety of tasks related to their work, such as using appropriate instructional techniques, managing behavior, monitoring student progress and adjusting instruction accordingly, and working with parents. The second was teachers' assessment of their overall performance as a teacher. The third summarized several items designed to measure teacher beliefs (e.g., *If you try hard you can get through to even the most difficult student*). The factor loadings for all three self-efficacy variables were reasonably high.

Factor 4: Professionalism. This factor included three variables: the number of professional journals teachers read regularly, the number of professional associations to which they belonged, and the number of times per month that colleagues asked them for professional advice. The three variables have moderate and more or less equal factor loadings; their variances are largely unexplained.

Factor 5: Selected classroom practices. This factor included four variables. Three of them were scale scores for the frequency with which special education teachers reported using specified best practices in teaching reading, managing behavior, and promoting inclusion. The fourth was a variable on the extent to which teachers individualized reading instruction. The reading scale and the inclusion scale have reasonable factor loadings. The other variables, although significant, have small factor loadings.

Source: Study of Personnel Needs in Special Education.

levels (Ferguson, 1991; Murnane, 1981; Turner & Camilli, 1988; Wendling & Cohen, 1980). Ferguson (1991) found that students in districts with more experienced teachers performed better after controlling for many other factors. The percentage of a district's teachers with 5 to 9 or 9 or more years of experience explained more than 10% of the between-district variance in student test scores. For elementary school teachers, experience beyond 5 years did not contribute to enhanced achievement, but it did for high school teachers.

Based on studies of classes and schools in two U.S. cities, Murnane (1981) reported that teachers with 3 to 5 years of experience were more effective than those with fewer than 3 years of experience. He found that classes with teachers who had 3 to 5 years of teaching experience averaged 2 to 3 months more reading progress in second grade than did classes with first-year teachers. Differences in math achievement were even greater.

SPeNSE data show that the nation's special education teachers, as a group, are highly experienced, averaging 14.3 years of teaching in 1999-2000; 12.3 of those years were spent teaching special education. This compares with SPeNSE estimates of 15.5 years of teaching experience for the nation's regular education teachers.

Factor 2: Credentials

The two components of the teacher credential factor were certification and teachers' level of education. There has been considerable debate in the literature about the importance of certification as a component or measure of teacher quality (Abell Foundation, 2001; Ballou & Podgursky, 1998; Darling-Hammond, 2000; Goldhaber & Brewer, 2000). Results of research on the relationship between student achievement and teacher certification have been ambiguous. Lopez (1995) found that teacher certification did not affect student achievement. However, Goldhaber and Brewer (2000) found that having a teacher who had standard certification had a statistically significant positive effect on 12th-grade test scores in math compared to teachers with private school certification or no certification in mathematics. They also reported that students assigned to mathematics and science teachers with emergency certification did no worse than students assigned to teachers with standard certification after controlling for many other factors. Darling-Hammond (2000) found that the proportion of a state's teachers with full state certification and a major in their teaching field was a significant predictor of student achievement at the state level.

SPeNSE data indicate that nationwide, 92% of special education teachers were fully certified for their main teaching assignment. Of those who were not fully certified, 1.5% did not have any teaching certificate or license, 4.8% had only an emergency certificate, and 2.0% were fully certified in a position other than their main assignment or in another state. Certification issues were most prevalent among less experienced teachers and teachers of students with emotional disturbance (ED). Only 71% of teachers with fewer than 3 years of experience were fully certified for their positions, compared to 94% of those with 3 or more years' experience. Eighty-four percent of all ED teachers were fully certified for their positions.

Results of previous studies have been ambiguous about a relationship between teacher level of education and student achievement (Darling-Hammond, 2000; Ferguson, 1991; Goldhaber & Brewer, 1997; Hedges, Laine, & Greenwald, 1994; Wenglinsky, 2000). Darling-Hammond (2000) reported that the percentage of a state's teachers with a master's degree was a weak but significant predictor of student achievement. In SPeNSE, teacher's level of education was significantly and moderately associated with the credentials factor. SPeNSE data show that 59% of

special education teachers had a master's degree, compared to 49% of regular education teachers.

Factor 3: Self-Efficacy

Teacher self-efficacy³ has repeatedly predicted student achievement and other important student outcomes despite inconsistencies in the instruments used to measure self-efficacy and the tests used to measure student achievement (Ashton & Webb, 1986; Midgley, Feldlaufer, & Eccles, 1989; Moore & Esselman, 1992; Ross, 1992). Gibson and Dembo (1984) found that teachers with high self-efficacy behaved differently from their colleagues. They more often persisted with struggling students and less often criticized students who answered incorrectly. Bender and Ukeje (1989) found that teachers with high self-efficacy were more likely to use effective instructional practices, and Landrum and Kaufman (1992) found that colleagues of regular education teachers with high self-efficacy perceived these teachers to be more capable of teaching students with behavior disorders.

Overall, special education teachers reported high levels of self-efficacy in SPeNSE. They agreed to a moderate/great extent that they had the preparation and experience to deal with most of their students' learning problems, that they dealt successfully with their students' behavior problems, and that they made a significant difference in their students' lives. They were slightly less likely to agree that if they tried hard, they could get through to even the most difficult or unmotivated students, or if their students mastered a new concept quickly, it was probably because they knew how to teach it. In rating their overall job performance, 62% said *very good*, and 20% said *exceptional*.

Special education teachers reported being highly skilled in many specific tasks required in their work, including planning effective lessons, managing behavior, using appropriate instructional techniques, and working with parents. They considered themselves relatively less skilled in using technology in instruction and accommodating culturally and linguistically diverse students' instructional needs.

Factor 4: Professionalism

Reading professional journals and belonging to professional associations may help teachers stay abreast of developments in the field and promote a sense of community among educators. However, rather than being a direct measure of teacher quality,

³ Brownell and Pajares (1999) defined teacher efficacy as "situation-specific 'perceptions of their own teaching abilities'. . .contextual judgments of their capability to succeed in particular instructional endeavors" (p. 154).

professionalism is likely a proxy for attitudinal differences among educators, such as professional identity, commitment to teaching, or an orientation toward life-long learning.

Professionalism from the SPeNSE factor analysis is loosely aligned with the concept of the professional teacher described by Murnane and Raizen (1988). Their professional teacher is knowledgeable about the subject matter, is intellectually curious, can modify curricula to best benefit students, and is a life-long learner. The authors also mention involvement in professional associations and work on publications as activities appropriate for the professional teacher (Murnane & Raizen, 1988).

SPeNSE found that the typical special education teacher reads one professional journal on a regular basis and belongs to one professional association. While professional activities emerged as a strong factor in SPeNSE, no research has been identified to support or refute the theory that students of teachers who read professional journals and belong to professional associations have better rates of academic achievement.

Factor 5: Selected Classroom Practices

Classroom practices are basic to teacher quality because interactions between teachers and their students directly affect the outcome of interest—improved student achievement. Process-product research has shown that specific teaching practices are related to student achievement (Pressley, Wharton-McDonald, Allington, Block, & Morrow, 1998; Wenglinsky, 2000). However, specific practices may also have their limits as indicators of teacher quality because good teaching requires using a variety of strategies, depending on the instructional context (Murnane & Raizen, 1988). This may be especially true in special education, where flexibility and individualization of instruction are especially important.

SPeNSE did not measure classroom practices through direct observation. Rather, it relied on self-reports of the use of various classroom practices. SPeNSE gave particular attention to five instructional areas: teaching reading, managing behavior, facilitating secondary transition, teaching English language learners (ELLs), and promoting inclusion.⁴ Two of the instructional areas, teaching ELLs and facilitating

⁴ In each of these professional areas, service providers were asked the extent to which they used various best practices identified by experts in the field. For example, 12 instructional practices were listed for teaching reading, and respondents were asked, for each of the 12, whether they use that approach *not at all*, *to a small extent*, *to a moderate extent*, or *to a great extent*. Scale scores were created by combining responses to those items that were highly correlated.

secondary transition, were excluded from this factor analysis because the items were inappropriate for many of the respondents due to the types of students they taught. Teachers' responses on the frequency with which they used various classroom practices were combined into scales for teaching reading, managing behavior, and promoting inclusion. On average, special education teachers reported using all three categories of classroom practices (i.e., teaching reading, managing behavior, and promoting inclusion) to a moderate extent.

Most of the individual items included in the SPeNSE classroom practice scales have documented links to student achievement. For example, the reading scale included questions about how often teachers asked their students to practice phonics or phonemic skills, systematically learn vocabulary, study the style or structure of a text, summarize what they had read, and read aloud. Previous research consistently links these practices with improvements in reading achievement (Pressley et al., 1998; U.S. Department of Health and Human Services, 2000).

Positive behavioral supports, which use “. . . long-term strategies to reduce inappropriate behavior, teach more appropriate behavior, and provide contextual support necessary for successful outcomes” (Warger, 1999, p. 1), have been associated with reductions in problem behaviors, increases in instructional time, and enhanced academic achievement (Pressley et al., 1998; Sugai & Horner, 2001). Many of the items included in the best practice scale for managing behavior are associated with research on positive behavioral supports, including teaching social skills, using tangible and social acknowledgements for appropriate behavior, giving in-class time-outs, and conducting functional behavioral assessments.

The goals of including students with disabilities in classes with their nondisabled peers are often social and functional as well as academic. Studies have linked the use of co-teaching models, in which special and general educators teach classes together, with enhanced social skills and academic achievement for low-achieving students (Pugach & Wesson, 1995; Walther-Thomas, 1997). However, most of the literature on inclusion does not attempt to associate student outcomes with specific teaching practices used in inclusive schools and classrooms. Consequently, the connection between student achievement and the items in the SPeNSE best practice scale on inclusion is tenuous.

An Aggregate Teacher-Quality Measure

In an attempt to derive a single measure of teacher quality, SPeNSE researchers conducted a second-order factor analysis in which the first-order factors (experience, credentials, self-efficacy, professionalism, and selected classroom practices) were combined to generate a single teacher-quality factor. In the aggregate teacher-quality

measure, professionalism was the most important factor, followed by self-efficacy. The other three were almost equal, with moderate factor loadings. The results suggest that each of the five teacher-quality factors is an important component of an aggregate teacher-quality measure and should be considered in future research on teacher quality.

SPeNSE analyses suggest that complex measures are required for assessing whether teachers are of high quality or for comparing workforce quality across schools, districts, or states. SPeNSE also suggests that teacher attitudes, such as self-efficacy or an orientation toward life-long learning, may be important areas of research in teacher quality. In particular, the professionalism factor requires further exploration to determine its component parts and their relationship to teacher quality and student achievement. It may be equally important to learn whether teacher attitudes linked to student achievement are relatively stable aspects of a teacher's personality or whether they can be taught during preservice preparation and, if so, how that is best accomplished.

Next Steps: Testing the Model Using Student Achievement Data

OSEP has a unique opportunity to test the validity of the teacher-quality model described in this module. The Special Education Elementary Longitudinal Study (SEELS), which is being conducted by SRI International under contract with the U.S. Department of Education, will provide nationally representative data on students with disabilities, including their academic achievement and the characteristics of their language arts teachers. Through a coordinated set of analyses using data from SPeNSE and SEELS, researchers will study the influence of teacher characteristics on the academic achievement of students with disabilities.

Researchers will develop multivariate models that explore the relationship between teacher characteristics, such as years of experience, certification status, level of education, self-efficacy, and practices for teaching reading,⁵ and student achievement, while controlling for other known correlates of student achievement (e.g., parents' education, family income, and school size). Several different models will be developed. Some will include individual teacher characteristics, like those specified; others will include an aggregate teacher-quality measure that combines these various teacher characteristics into a single variable.

It is likely that the quality of the special education teachers in a given school or district may be affected by many variables. These variables may include preservice

⁵ SEELS did not include questions on facilitating inclusion, managing behavior, or professional activities.

preparation that provides future teachers with the knowledge and skills needed in the classroom, personnel policies that help administrators recruit and retain high-quality staff, continuing professional development that hones teachers' skills, and working conditions that facilitate the teaching and learning process. These influences may also affect the quality of the workforce nationwide through the career choices people make. For example, if salaries in teaching are not competitive with those in other professions, talented young adults may choose alternative careers, and experienced teachers may leave teaching for higher paying positions in other fields.

Local, state, and Federal policymakers and administrators of teacher preparation programs must make difficult choices about how to allocate their financial and personnel resources to greatest effect. It is important for them to know what changes in policy and practice are most effective for improving teacher quality in special education. If the SPeNSE teacher-quality model is confirmed in SEELS, researchers will try to address these issues by exploring conditions and experiences associated with high-quality teachers. Such research would yield information on issues such as the role of professional development in enhancing teacher quality, the influence of salary and other forms of compensation on teacher quality, and the relationship between preservice program characteristics and teacher quality.

Summary

The initial SPeNSE factor analysis tested experience, credentials, self-efficacy, professionalism, and selected classroom practices. Experience proved to be the strongest of the factors in this first analysis, with the highest factor loadings. Researchers then conducted a second-order factor analysis in an attempt to derive a single, aggregate measure of teacher quality. The second analysis indicated that professionalism, as defined by a finite set of professional activities, was the most important factor in the aggregate measure, followed by self-efficacy. The three remaining factors had moderate and nearly equal factor loadings. The results of the second analysis suggest that all five of the teacher-quality factors are important components of the aggregate teacher-quality measure.

Attempts to use SPeNSE data to measure teacher quality have several limitations. However, these exploratory analyses are an important first step in measuring special education teacher quality. Future analyses of SPeNSE data in conjunction with SEELS data will test the validity of the SPeNSE teacher-quality model and shed new light on how teacher characteristics influence the academic achievement of students with disabilities.

Appendix

Factor Loadings and Model Fit Statistics

The factor loadings range from -1 to 1 . The size indicates the relative importance of each variable among those variables that define the factor. The factor loadings are the correlations between the variables and the factor. Their squares tell how much variance is explained by the factor. For example, if a factor loading of a variable is 0.5 , then 25% of its variance is explained by the factor.

Factor Loadings of the First-Order Factors^{a/}

Variable	Variable description	Factor loadings					Error variance
		Exper	Cred	Self-ef	Prof	Pedag	
SYEARTCH	Years teaching	.986					0.03
SYEARSSE	Years teaching in special education	.908					0.18
D2CERT	Level of certification		.560				0.69
DHIGHED	Highest degree earned		.367				0.88
DCNTCERT	Number of fields in which certified		.181				0.97
SEFF ^{b/}	Score on the Gibson & Dembo self-efficacy scale			.510			0.73
DOVERALL	General self-assessment of performance as a teacher			.682			0.53
DSKILLSE	Scale combining self-assessment on specific professional skills, a subset of those in the CEC Standards for Entry into Practice			.768			0.40
SJOURNALS	# professional journals teachers read regularly				.301		0.90
SASSOCIA	# professional associations to which teachers belong				.333		0.89
DRADVICE	Times per month teachers are asked for professional advice from colleagues				.331		0.89
DREADSP	Frequency with which teachers reported using identified best practices to teach reading					.504	0.75
DINDIV	Extent to which teachers individualized reading instruction					.163	0.90
DMANAGS2	Frequency with which teachers reported using identified best practices to manage behavior					.295	0.92
DINCLUS2	Frequency with which teachers reported using identified best practices to promote inclusion					.523	0.72
DREMAIN	Plans to remain in teaching special education						
SFARRELO	Distance teacher relocated to accept current position						
SKNOWCUL	Extent to which teachers know the cultures of the students in their school						

a/ All variables with significant factor loadings in LISREL were retained.

b/ This variable was itself derived through a factor analysis of individual items in the Gibson & Dembo self-efficacy scale.

Source: Study of Personnel Needs in Special Education.

Factor Loadings of the Second-Order Factor

Factor: Teacher Quality

Variable	Factor Loading	Error Variance
EXPERIENCE	0.400	0.84
CREDENTIALS	0.414	0.83
SELF-EFFICACY	0.874	0.24
PROFESSIONALISM	0.924	0.15
SELECTED CLASSROOM PRACTICES	0.441	0.81

Source: Study of Personnel Needs in Special Education.

Model Fit Statistics

The following model fit statistics show that the model fit was adequate. However, some error terms were correlated, and the model included the correlated error terms.

Root Mean Square Error of Approximation (RMSEA) = 0.0414

90 Percent Confidence Interval for RMSEA = (0.0319 ; 0.0509)

P-Value for Test of Close Fit (RMSEA < 0.05) = 0.930

Comparative Fit Index (CFI) = 0.965

Root Mean Square Residual (RMR) = 0.0412

Standardized RMR = 0.0413

Goodness of Fit Index (GFI) = 0.967

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What Are We Spending on Special Education Services in the United States, 1999-2000?¹

This module is based on descriptive information derived from the Special Education Expenditure Project (SEEP), a national study conducted by the American Institutes for Research (AIR) for the U.S. Department of Education, Office of Special Education Programs. SEEP is the fourth project sponsored by the U.S. Department of Education to examine the nation's spending on special education and related services (Kakalik, Furry, Thomas, & Carney, 1981; Moore, Strang, Schwartz, & Braddock, 1988; Rossmiller, Hale, & Frohreich, 1970).

This module provides basic summary information on the following issues for the 1999-2000 school year:

- What are we spending on special education services for students with disabilities in the United States?
- How do special and regular education expenditures compare?
- How has special education spending changed over time?
- What are the components of special education spending?
- What are we spending on transportation services for students with disabilities?
- What are we spending on identification and due process for students with disabilities?

A Conceptual Framework for Analyzing Special Education Spending

Before presenting the numbers, it is important to distinguish between *total special education spending* and *total spending to educate a student with a disability*. *Total special education spending* includes amounts used to employ special education teachers, related service providers, and special education administrators, as well as spending on special

¹ A longer article with greater detail can be found at: www.seep.org/results.html. The article is titled "What Are We Spending on Special Education Services in the United States, 1999-2000? Advanced Report #1."

transportation services and nonpersonnel items (e.g., materials, supplies, technological supports) purchased under the auspices of the special education program. Some portion of special education spending is used for instructional services that normally would be provided as part of the general education curriculum offered to regular education students.

In contrast to total special education spending, *total spending to educate a student with a disability* encompasses *all* school resources, including both special and regular education and other special needs programs, used to provide a comprehensive educational program to meet student needs. Most students with disabilities spend substantial amounts of time in the regular education program and benefit from the same administrative and support services as all other students.

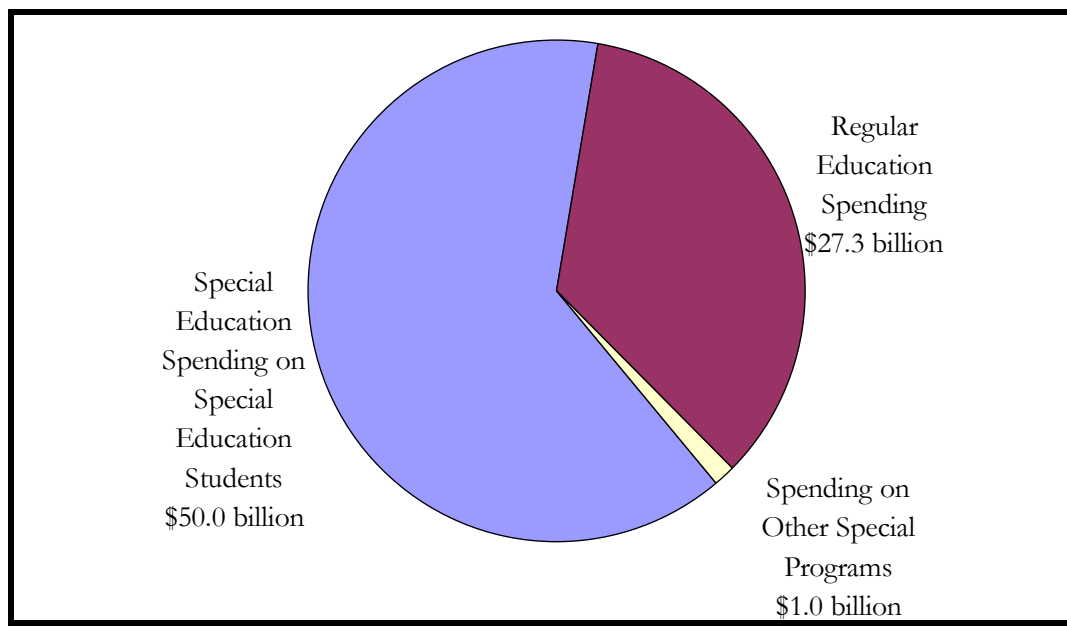
The additional expenditure attributable to special education students is measured by the difference between the total spending to educate a student with a disability and the total spending to educate a regular education student (i.e., a student with no disabilities or other special needs). This concept of additional expenditure emphasizes that what is being measured is a reflection of actual spending patterns on special and regular education students and not a reflection of some ideal concept of what it should cost to educate either student. The numbers presented in this report represent “what is” rather than necessarily “what ought to be.”

This report uses the term expenditure instead of cost to emphasize the fact that all that is being measured is the flow of dollars. The word cost, in contrast to expenditure, implies that one knows something about results. To say it cost twice as much to educate a special versus a regular education student implies that one is holding constant what is meant by the term “educate.” All of the studies (including the present study) are focused on expenditures with no implications about the results. The expenditure figures presented represent an estimate of the current behavior of the schools and districts across the nation and imply nothing about what spending is required to provide similar results for students with disabilities.

Total Spending on Students With Disabilities

During the 1999-2000 school year, the United States spent about \$50 billion on special education services. Another \$27.3 billion was expended on regular education services, and an additional \$1 billion was spent on other special needs programs (e.g., Title I, English language learners, or Gifted and Talented Education) for students with disabilities eligible for special education. Thus, total spending to educate all students with disabilities found eligible for special education programs amounted to \$78.3 billion (see Figure I-1).

Figure I-1
Total Spending on Students With Disabilities Who Are Eligible for Special
Education Services in the United States, 1999-2000

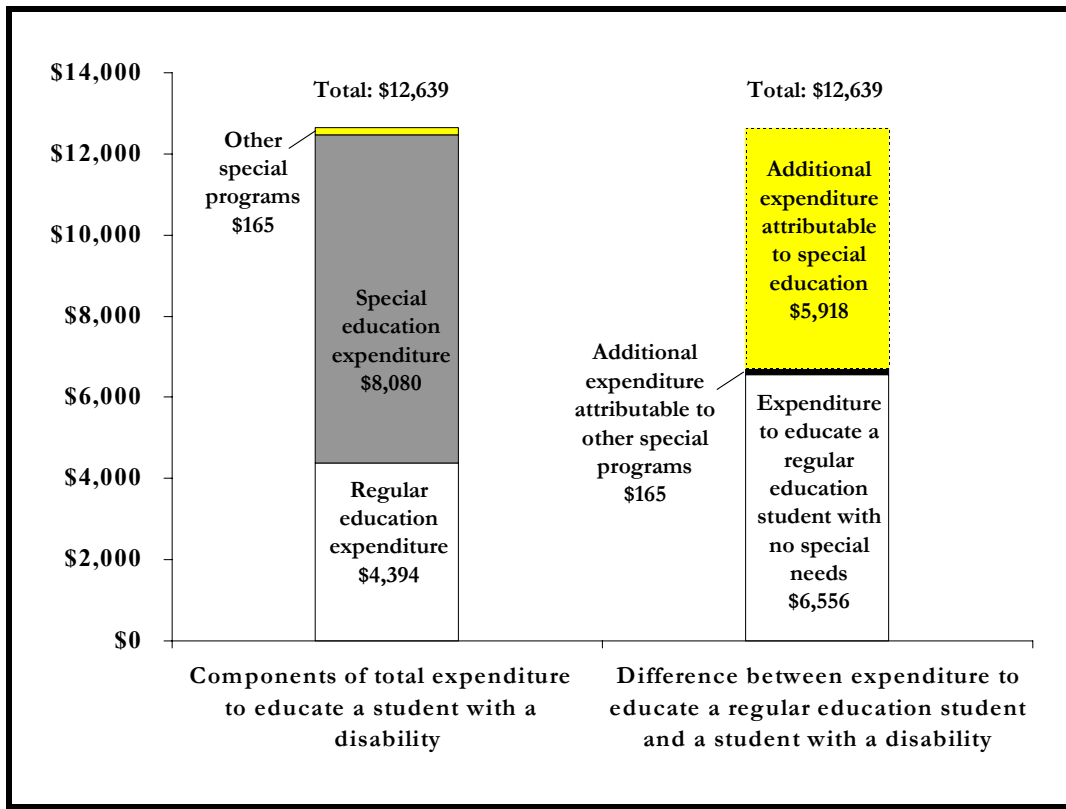


Source: Special Education Expenditure Project.

In per-pupil terms, the total spending used to educate the average student with a disability amounts to \$12,639 (see Figure I-2). This amount includes \$8,080 per pupil on special education services, \$4,394 per pupil on regular education services, and \$165 per pupil on services from other special need programs (e.g., Title I, English language learners, or Gifted and Talented Education). The total including only the regular and special education services amounts to \$12,474 per pupil.

Based on these figures, the total spending to educate students with disabilities, including regular education, special education, and other special needs programs combined, represents 21.4% of the \$360.6 billion total spending on elementary and secondary education in the United States. Total special education spending alone accounts for 13.9% of total spending.

Figure I-2
 Calculation of Additional Expenditure on a Student With a Disability,
 1999-2000



Source: Special Education Expenditure Project.

Additional Expenditure To Educate a Student With a Disability

How much more is being expended to educate a student with a disability than a student with no special programmatic needs? In other words, what is the additional *spending* on a student with a disability? Addressing this question permits a comparison of the special education student to a consistent benchmark—the regular education student who requires *no* services from any special program (e.g., for students with disabilities, students from economically disadvantaged homes, or students who are English language learners).

The data derived from SEEP indicate that the base expenditure on a regular education student amounts to \$6,556 per pupil. Comparing this figure to the average expenditure for a student eligible to receive special education services, the additional expenditure amounts to \$5,918 per pupil attributable to special education.

Alternatively, one can use these figures to estimate the ratio of expenditure to educate a special versus regular education student. The ratio of additional expenditures attributable exclusively to special education may be estimated as 1.90 ($\$12,639 - \$6,556$)/\$6,556). This suggests that, on average, the nation spends 90% more on a special education student than on a regular education student.

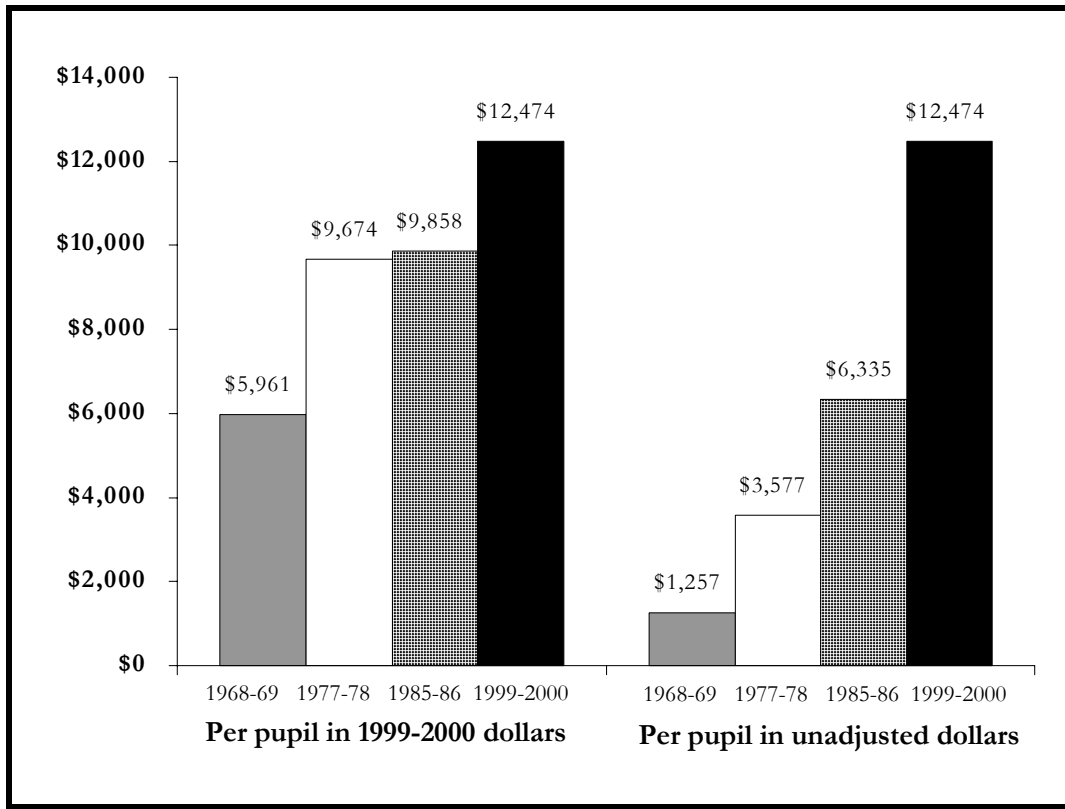
In most states, school funding formulas are designed to provide revenues necessary to support current operating expenditures for schools and school districts.² Expenditures on capital facilities such as school and central office buildings are funded separately from the standard school funding formulas. The expenditure figures reported above include both current operating expenditures and estimates of capital expenditures for serving special and regular education students. If one excludes expenditures on capital facilities from the figures above, the ratio of current operating expenditure to educate a special education student relative to a regular education student is 2.08 (or 2.11 if other special programs are included).³ In other words, the *additional current operating expenditure* to educate a special education student is 108% of the current operating expenditure to educate a regular education student with no special needs. The reason this ratio increases from 1.90 to 2.08 is that the additional time and personnel required to meet the needs of special versus regular education students exceeds the additional amount of classroom space necessary to serve these needs in relative terms.⁴

² Current operating expenditures include salaries, employee benefits, purchased services, supplies, tuition, and other annual expenditures for operations. Examples of items not included are capital outlays, debt service, facilities acquisition and construction, and property expenditures.

³ This ratio is calculated by dividing total current expenditures used to educate students with disabilities (excluding facilities, \$11,096) by total current expenditure for a regular education student with no special needs (excluding facilities, \$5,325). Thus, the ratio is $2.08 = 11,096 / \$5,325$. This 2.08 ratio compares to the 1.90 reported previously.

⁴ Consider the example of a special education student whose needs are met by adding the time of a resource specialist in the regular classroom. There is virtually no additional classroom space required (e.g., capital expenditure), while there is an increase in the time required of professional staff to provide services (e.g., operating expenditure).

Figure I-3
Changes in Special Education Spending Per Pupil Over Time
(Excluding Other Special Needs Program Spending)



Source: Special Education Expenditure Project.

Changes in Spending Over Time

Figure I-3 illustrates how expenditures have changed over time by comparing the findings from this study with those from the previous three studies of special education spending sponsored by the U.S. Department of Education. In constant dollars, total spending to educate a student with a disability (excluding Other Special Needs Program Spending) has increased from an average of \$9,858 per pupil in 1985-86 to \$12,474 in 1999-2000, an annualized growth rate of 0.7%. During this same period, total expenditure per pupil (including all students but excluding Other Special Needs Spending) in public elementary and secondary schools increased from \$5,795 to \$7,597, an annualized growth rate of 0.8%.

Since 1968-69, when the earliest study on special education expenditures was conducted, the total per pupil spending on students with disabilities has risen from

\$5,961 to \$12,474 in constant dollars, while total spending per pupil in all public elementary and secondary schools (excluding Other Special Needs Program Spending) has increased from \$3,106 to \$7,597. In other words, total per pupil spending on the average special education student has increased by 110%, while total per pupil spending on *all* elementary and secondary education students has increased by 140%.

While per pupil spending for all students increased at a faster relative rate than per pupil spending on students with disabilities, total spending on students with disabilities as a percentage of total education spending (excluding Other Special Needs Program Services) increased from about 16.6% in 1977-1978⁵ to 21.4% in 1999-2000. Over the same period, the percentage of students ages 3 through 22 who were receiving special education services increased from about 8.5% to almost 13% of the school-age population. The implication is that the growth in the numbers of students served in special education programs accounts for the increase in spending on special education.

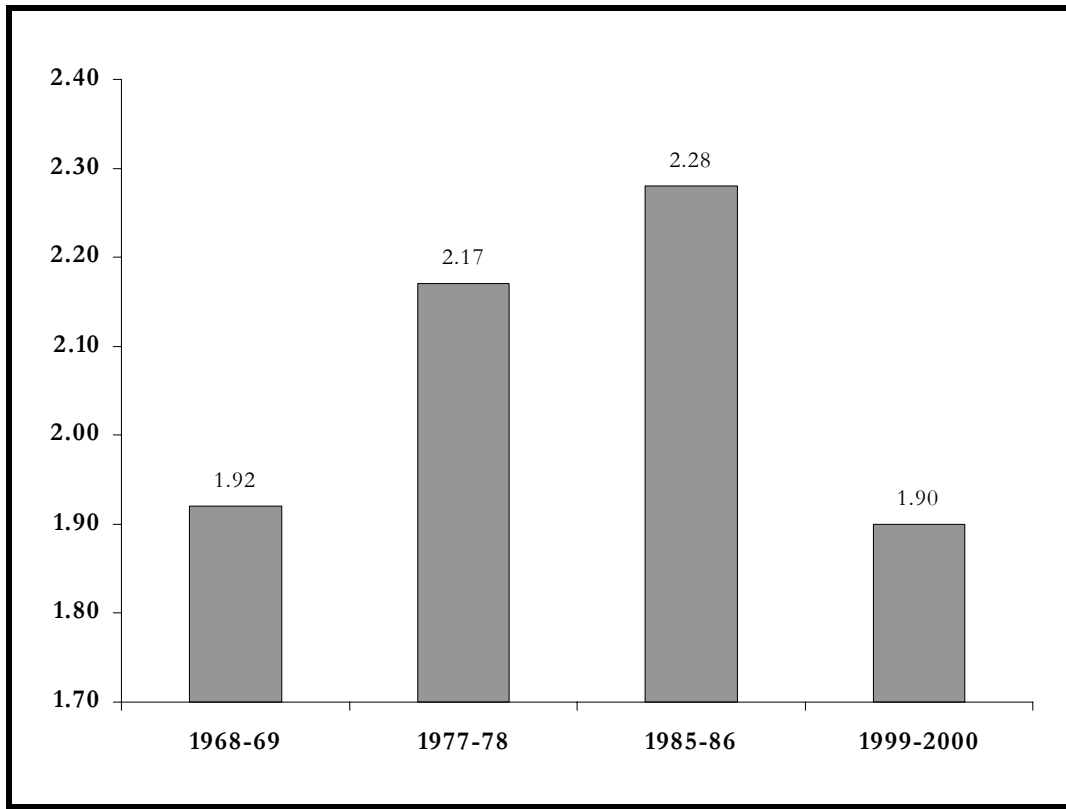
Changes in Spending Ratio Over Time

For the past decade, policymakers, researchers, and practitioners familiar with special education finance estimated the ratio of total expenditure (including Other Special Needs Spending) to educate a student with a disability to the total expenditure to educate the typical regular education student to be about 1.3. That is, the additional expenditure (i.e., the spending ratio) on a student with disabilities was estimated to be 130% more (1.3 times) than the amount spent on a typical regular education student. However, using the 1999-2000 school year SEEP data, this spending ratio is now estimated to be 1.90 or 90% more than the amount spent on a typical regular education student. Expressed in dollars, the additional expenditure amounts to \$5,918 per pupil over the base expenditure of \$6,556.⁶ Figure I-4 shows how the estimated expenditure ratio has changed over the time-span of the four special education expenditure studies. The ratio appears to have increased from 1.92 in

⁵ The 1977-78 school year was 2 years after passage of the Education for All Handicapped Children Act, P.L. 94-142, the predecessor to the Individuals with Disabilities Education Act (IDEA).

⁶ Estimates of per pupil expenditure for a regular education student are based on a combination of data from the SEEP school surveys and the surveys for those special education students who spend the vast majority of their time in the regular education classroom. Expenditures for these students include both direct instruction as well as administration and support services provided to the typical regular education student.

Figure I-4
Ratio of Spending Per Special and Regular Education Student Over Time
(Including Other Special Needs Program Spending)



Source: Special Education Expenditure Project.

1968-69, to 2.17 in 1977-78, to a high of 2.28 in 1985-86, then declined to 1.90 in 1999-2000.⁷

Several factors have likely affected the changes in this ratio over time. First, there has been a substantial increase in the proportion of students identified with less intensive service needs over recent decades. Since 1975, the proportion of students with learning disabilities has increased from about one fourth of the population of students with disabilities to almost one half. The special educational services necessary to meet these students' needs may not be as costly as other disability categories, thus lowering the overall incremental expenditure.

⁷ In addition to estimates based on the current SEEP, these ratios are derived from Kakalik et al. (1981), Moore et al. (1988), and Rossmiller et al. (1970). For a summary of these three previous studies, see Chaikind, Danielson, & Brauen (1993). The ratios are estimated from data derived from Chaikind et al. (1993), Table 7.

Second, over the past 10 years, there has been a decline in the extent to which special education students are served outside of the regular education classroom and in separate school facilities. These trends toward less restrictive placements may have resulted in somewhat lower per pupil expenditures on special education instruction and related services (e.g., home-to-special-school transportation).⁸

Working in the opposite direction to *increase* the incremental expenditure are the successes in medical science that have reduced mortality among students with certain severely disabling conditions who might not have survived long enough to be enrolled in special education programs. Some of these students may be among the most severely disabled populations served currently under IDEA, tending to increase the per pupil expenditure necessary to serve students with disabilities overall.

Allocation of Special Education Expenditures

Components of Special Education Spending

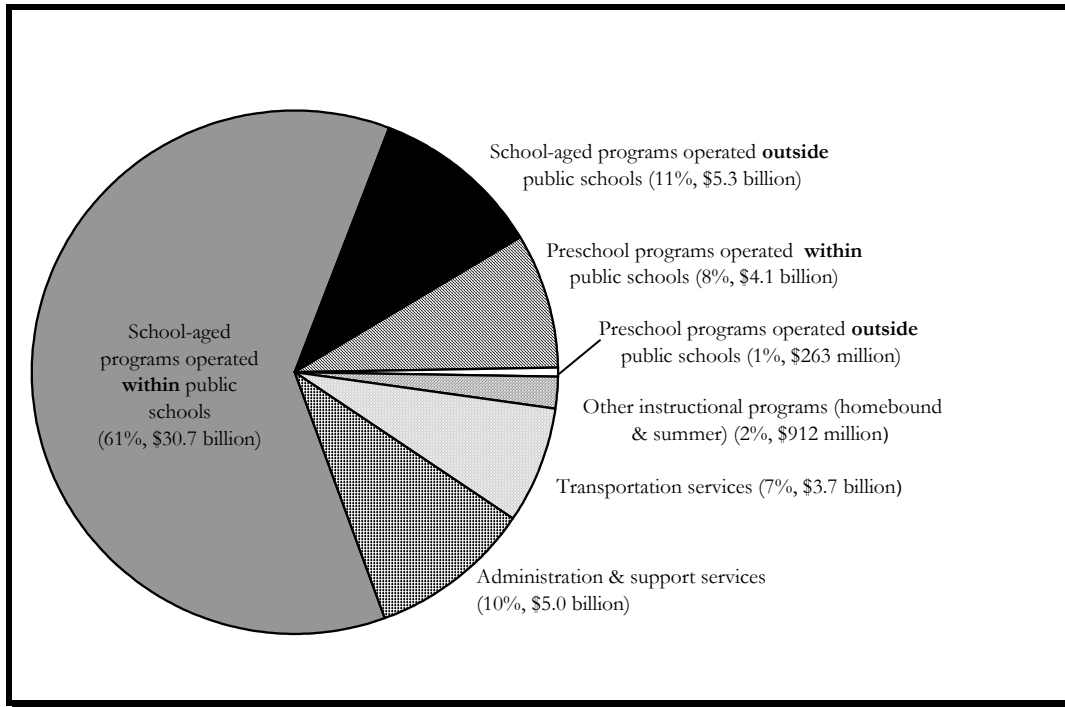
Focusing on the \$50 billion of special education spending, it is useful to see how funds are allocated among different spending components. Special education spending includes central office administration and support of the program, direct instruction and related services for preschool (ages 3 through 5) and school-aged (ages 6 through 21) students, special education summer school, programs for students who are homebound or hospitalized, and special transportation services. Figure I-5 shows the dollar amount and percentage of special education spending on each of these components.

Direct Instruction and Related Services

During the 1999-2000 school year, over 80% of total special education expenditures were allocated to direct instruction and related services. This figure includes preschool programs, school-aged programs, summer school programs, and homebound and hospital programs. It takes into account the salaries of special education teachers, related service personnel, and special education teaching assistants. It also includes nonpersonnel expenditures (i.e., supplies, materials, and capital outlay for specialized equipment) necessary to provide direct special education instruction and related services to students with disabilities.

⁸ See Figure III-1 in the 22nd *Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act*.

Figure I-5
Allocation of Special Education Expenditures, 1999-2000



Source: Special Education Expenditure Project.

Direct instruction and related services for special education preschool programs represent approximately 9% of total special education expenditures, or \$4.4 billion. The majority of preschool spending (\$4.1 billion) occurs in public schools operated by the school districts in which students reside. Most of the remaining funds allocated to preschool programs (\$263 million) are used to pay tuition and fees for preschool programs operated in nonpublic schools or public agencies other than the public school district in which the student resides and to support direct expenditures for additional related services.

At \$36 billion, instruction and related services for school-aged students (ages 6 through 21) account for 72% of total special education expenditures. Direct instruction and related services for programs operated by the student's home district amount to approximately \$31 billion. This represents more than 60% of total special education expenditures, serving almost 5.4 million of the 6.2 million special education students in the 50 states and the District of Columbia. For the approximately 200,000 students placed in nonpublic school programs or programs operated by public agencies or institutions other than the public school district in which they reside, the expenditure is \$5.3 billion. These expenditures include tuition,

fees, and amounts allocated for other related services that are provided by the home district.

Other instructional programs include homebound and hospital programs, as well as summer school programs for students with disabilities. It is estimated that, for the 1999-2000 school year, just under 30,000 students with disabilities were served in homebound and hospital programs and that these programs account for less than 0.5%, or \$98 million, of the total special education spending. Summer school programs serve about 10% of the total number of students (623,000) in special education programs and account for about 1.6% (\$815 million) of the total special education expenditures.

Administration and Support

Overall, administration and support account for about 10% or \$5 billion of total special education spending. Administration and support expenditures include three components:

- Central office administration and support of the special education program—\$4 billion, or 8.2% of total special education expenditures. This expenditure includes salaries of central office employees, fees for contractors, and nonpersonnel expenditures to support staff in the performance of central office functions for the special education programs. These functions include administration, coordination, staff supervision, monitoring and evaluation, due process, mediation, litigation support, assessment of student progress, and eligibility determination.
- Certain categories of related service personnel assigned to the school site—\$745 million, or 1.5% of total special education expenditures. These categories of school-site staff spend a substantial portion of their time involved in various indirect support activities related to assessment and evaluation of students with disabilities.
- Administration and support activities of special education schools—\$131 million, or less than 0.3% of total special education spending. These schools are designed explicitly and exclusively for serving students with disabilities—generally the most severely disabled students.⁹

⁹ Special schools include those operated by public school districts as well as state special education schools.

Transportation

It is estimated that more than 800,000 students with disabilities receive special home-to-school transportation services at a total expenditure of more than \$3.7 billion. These numbers suggest that less than 14% of students with disabilities received special transportation services during the 1999-2000 school year, representing about one fourth of total expenditures on all home-to-school transportation services provided in the United States.¹⁰

Since 1985-86, the percentage of students receiving special transportation has dropped by more than half, and the per pupil expenditure (expressed in constant dollars) has increased from about \$2,463 to \$4,418 (an increase of 180%).¹¹ These comparative data suggest that fewer students are being transported today to separate special education schools and that perhaps only the most severely disabled students, who require more costly accommodations, are currently receiving special transportation services. The evidence further suggests that more students with disabilities are receiving regular transportation services.

Per Pupil Spending on Special Education Services

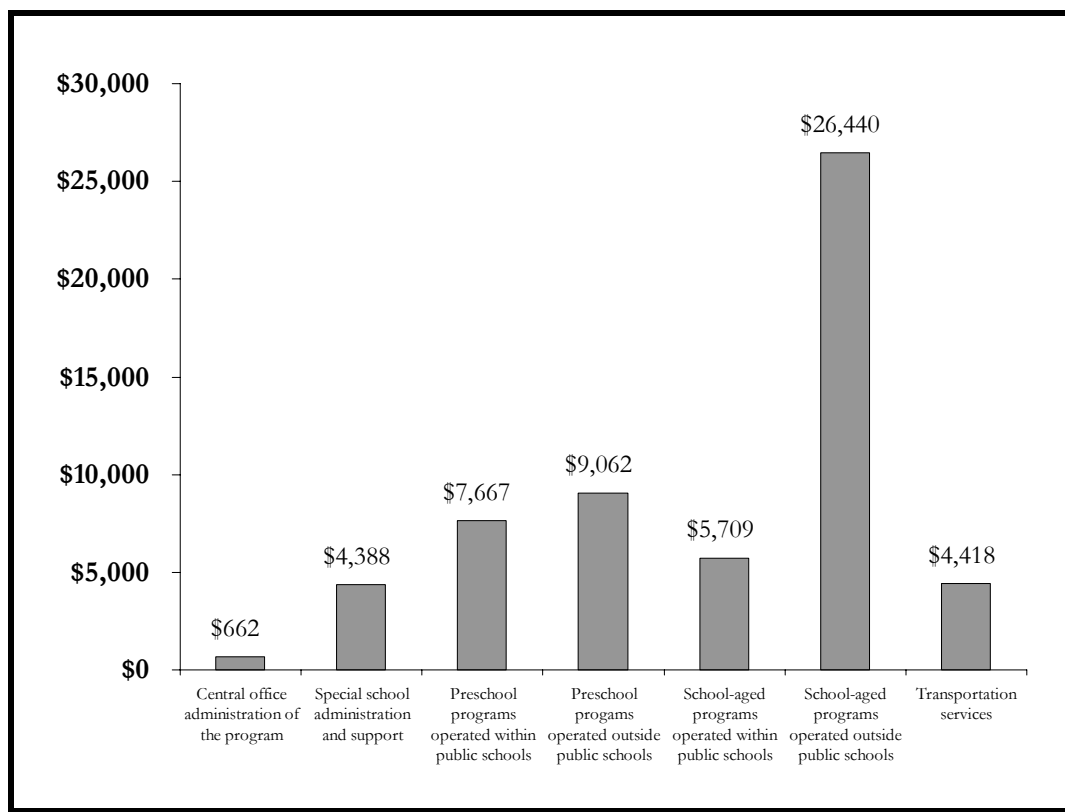
Figure I-6 provides another perspective for exploring special education expenditure by dividing the total expenditure within each special education program component by the number of students served within that component to arrive at per-pupil spending. These figures include only the special education expenditures associated with each component; they do **not** include the full expenditure to educate these students since no regular education instruction or administrative expenditures are included in these numbers.

Average special education spending on a student served in programs outside the public schools amounted to \$26,440. This figure includes spending on the tuition for nonpublic schools and expenditures on any direct, related services that might be

¹⁰ According to figures reported by the sample districts, it is estimated that total transportation expenditure (regular and special transportation combined) amounts to more than \$13 billion per year. Based on these figures, special education transportation represents about 27% of total transportation expenditure.

¹¹ Moore et al. (1988) reported that 30% of students with disabilities received special transportation services at an average expenditure per student of \$1,583. Using the Consumer Price Index (CPI) adjusted to the school year, per student expenditure adjusted to 1999-2000 dollars amounts to \$2,463 [=1,583/(108.8/169.3) where 169.3 is the CPI for 1999-2000 school year and 108.8 = the CPI for the 1985-86 school year].

Figure I-6
Per Pupil Special Education Spending, 1999-2000



Source: Special Education Expenditure Project.

provided by the district of residence. In contrast, special education spending on direct instruction and related services for school-aged students served within public schools amounted to \$5,709 per pupil. For preschool students, the special education spending on students served in programs operated **outside** public schools amounted to \$9,062 per pupil compared to \$7,667 for those students served in programs **within** public schools.

The expenditures on central office administration of the special education program (i.e., the operations of the office of the director of special education within local education agencies) amounted to \$662 per pupil. Administration and support expenditures for operation of a special education school averaged \$4,388.¹²

¹² This figure includes both special education schools operated within local school districts as well as those operated by the state such as the state schools for the deaf and blind.

Expenditures on Assessment, Evaluation, and IEP-Related Activities

Previous studies have suggested that expenditures for the processes that determine the eligibility of students to be served in the special education program take up a substantial share of total special education spending.¹³ For the purposes of this study, determination of eligibility involves a variety of activities, including prereferral and referral activities; initial screening; ongoing assessment, evaluations, and reviews; and preparation of the individualized education program (IEP).

Based on SEEP data, it is estimated that total spending on eligibility determination activities during the 1999-2000 school year was about \$6.8 billion, or \$1,086 per special education student.¹⁴ As Figure I-7 indicates, 28% of the total expenditure on these activities is accounted for by salaries and benefits of special education related-service providers at the school site, while 27% is spent on special education teachers, 23% on regular education teachers, and 22% on central office special education staff.

It is important to recognize that the \$1,086 per pupil does not represent the expenditure to determine the eligibility for any given student. While the figures above reflect the best estimates of the total dollars supporting these activities, the denominator is simply the count of special education students. Some students who go through this process for determining eligibility are found ineligible to receive special education services. On the other hand, re-evaluations of students who are already in the special education program can, in many instances, be done with relatively limited effort on the part of staff.

Allocation and Use of Federal Funds

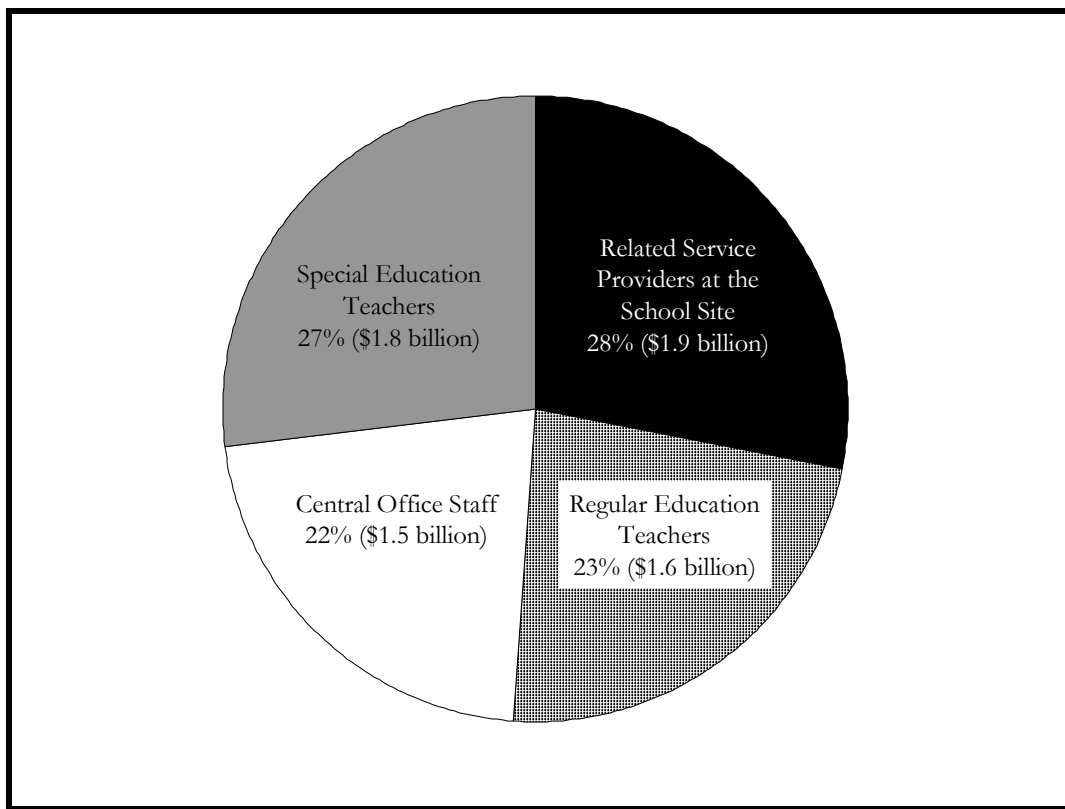
In 1999-2000, local school districts received a total of \$3.7 billion (or \$605 per student) in Federal IDEA funds for the purpose of providing special education services.¹⁵ As such, Federal funds supported 7.5% of total special education expenditures at the local level and 4.9% of total expenditures used to educate a student with disabilities. When taken as a percentage of the additional expenditure on

¹³ See the discussion in Moore et al. (1988), p. 100.

¹⁴ Estimates from previous studies of assessment expenditures are not compared due to the different methodologies used.

¹⁵ These only include Federal IDEA Part B funds, basic and preschool grants that flow through the state education agencies to the local school districts. The average per pupil amount of Federal funding awarded to the states for 1999-2000 was about \$734 (or \$4.5 billion, including \$4.2 billion from the basic grant and \$371 million for the preschool grant). Approximately 17% of the Federal funds were retained at the state level.

Figure I-7
Assessment, Evaluation, and IEP-Related Expenditures, 1999-2000



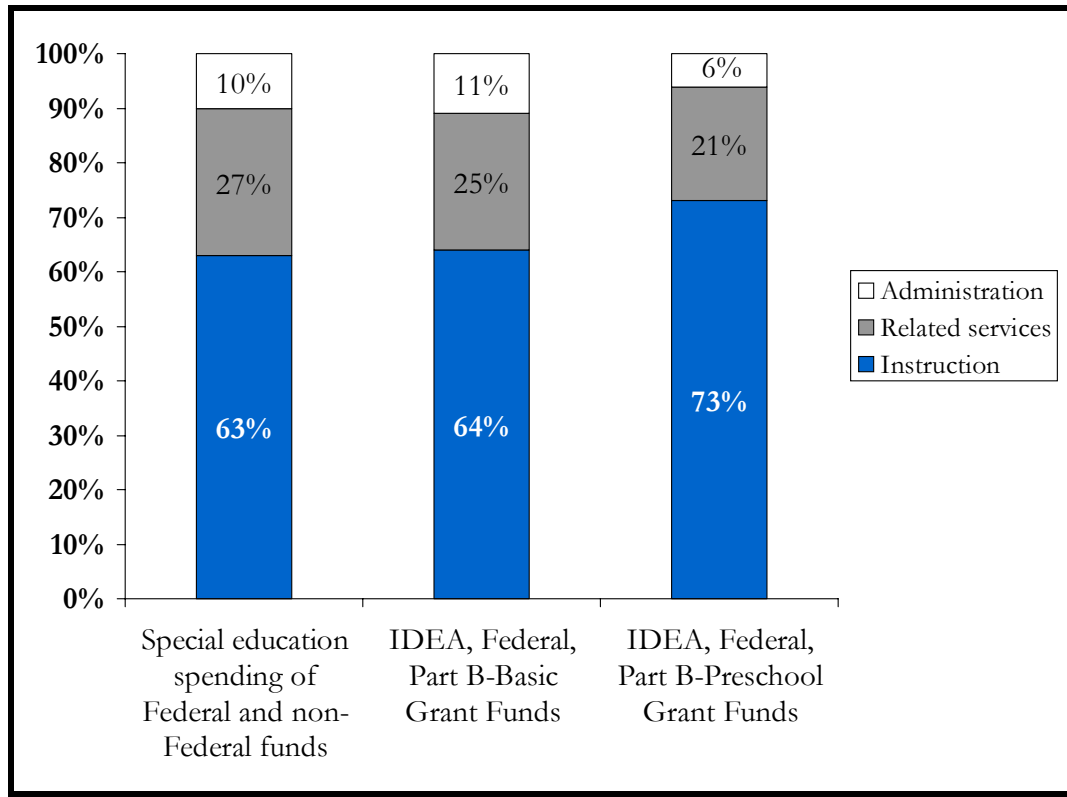
Source: Special Education Expenditure Project.

a special versus regular education student, Federal IDEA funds amounted to more than 10% of the additional expenditure on students with disabilities for the 1999-2000 school year.¹⁶

Figure I-8 shows how these Federal IDEA funds—basic and preschool—are allocated to instruction, related services, and administration, and it compares the use of Federal funds to the use of all Federal and non-Federal funds that support special education spending. The first vertical bar shows that 63% of total special education spending is used for instruction; 27% is allocated to related services; and the rest (10%) is allocated to administration.

¹⁶ In fact, Federal IDEA funding to local education agencies is 10.2% of additional total expenditure (=\$605/\$5,918) and 10.5% of additional total current expenditure (=\$605/\$5,769) used to educate the average special education student.

Figure I-8
Allocation of Special Education Funds by Function, 1999-2000



Source: Special Education Expenditure Project.

The second and third vertical bars in Figure I-8 show how Federal Part B-basic grants and preschool grants are used. Of those districts reporting the allocation of Part B basic grant funds, 64% of the funds were allocated to instruction, 25% were distributed to related services, and the remaining 11% were spent on administration and support services. In districts reporting how the preschool funds were spent, almost three fourths of the funds were used for instruction, 21% were allocated to related services, and the remaining 6% were expended on administration and support services.

Medicaid is another source of Federal funding for providing special education services. Of reporting districts, 44% of districts recovered funds spent on special education services from Medicaid, with an average of \$105 per special education student. This represents an estimated national total of \$648 million from Medicaid sources, or about 1.3% of total special education expenditure or about 1.8% of additional spending on the average student with disabilities.

Thus, as of the 1999-2000 school year, total Federal IDEA and Medicaid support of special education spending at the local level represents about 8.8% of total special education spending or about 12% of additional spending on special education students.

Future Reports

This module reflects the first in a series of reports that will explore in greater depth the factors that underlie special education spending patterns across local jurisdictions, over time, and on different categories of students. These analyses will show the tremendous diversity of needs represented among students identified as eligible for special education services. The analyses will also explore how student characteristics and the characteristics of districts and states are related to variations in spending on students with disabilities. Further analysis will also examine specific components of special education expenditures such as due process, assessment and the processes surrounding the development of individualized education programs, and transportation services.

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Children With Disabilities in Low-Income Families: An Analysis of Data From the ECLS-K

The U.S. Census Bureau estimates that more than 11 million children live in poverty in the United States. This figure represents 16% of all U.S. children under the age of 18 (Dalaker, 2001). The Census Bureau poverty threshold for a family of four was \$18,267 in 2001.

Child poverty has implications for the field of special education because it can affect children's health and behavior, as well as their cognitive development and academic achievement. Although poverty has not been established as a direct cause of disability, studies show that it "acts as a proxy for many of the variables that in turn increase the risk of disability. Inadequate prenatal care, single teenage pregnancy, poor nutrition, and low educational attainment, while not exclusive to any one segment of society, are more readily encountered among the poor" (Seelman & Sweeney, 1995, p. 3). Researchers have found that poverty trends are exacerbated when a child with a disability lives in the household; they also have identified an increased risk of disability among children in poor families (Fujiura & Yamaki, 2000). The association between poverty and disability is therefore an important issue for special education researchers to address.

Child poverty is of importance to special education service delivery for another reason as well. The initial funding formula for P.L. 94-142 based allocations on the number of children with disabilities receiving special education and related services in each state. However, the Individuals with Disabilities Education Act (IDEA) Amendments of 1997 revised the funding formula so that a percentage of the funds allocated to each state is based on the relative population of children living in poverty in that state. This change in the funding formula, which took effect in Federal fiscal year (FFY) 1998 for the Preschool Grants Program and FFY 2000 for the Grants to States program, has heightened the importance of studying child poverty in relation to children with disabilities.

The study reported in this module uses base-year data from the Early Childhood Longitudinal Study – Kindergarten Class of 1998-99 (ECLS-K) to examine the effects of poverty and associated variables on cognitive assessment scores and social skills ratings. It also compares the demographic characteristics of poor and nonpoor kindergartners with disabilities.

The module begins with a review of the literature on the physical, cognitive, and behavioral effects that poverty may have on children. Subsequent sections explain the methods used in the study and present the study findings. The final section of the module discusses those findings in relation to the literature and suggests directions for future research.

Poverty and Child Development

Research has demonstrated that poverty may have an impact on children's physical health, their cognitive development and achievement, and their behavior. This section of the module discusses some of the research in each of these areas.

Physical Health

The literature suggests a general relationship between children's health and family income, with lower income families reporting that their children are in poorer health (e.g., Brooks-Gunn & Duncan, 1997; Federal Interagency Forum on Child and Family Statistics, 2001). In addition to differences in general measures of child health, research indicates that poor children are more likely to experience a number of specific health-related problems that may lead to eligibility for services under IDEA. One example is low birth weight (LBW), which is defined as weighing less than 2,500 grams at birth. LBW significantly increases the risk of long-term disability and early mortality (Ventura, Martin, Curtin, & Mathews, 1997) and is associated with higher rates of specific health problems such as childhood asthma (Brooks, Byrd, Weitzman, Auinger, & McBride, 2001). It is also associated with learning disabilities and with negative school outcomes such as grade repetition, as well as lower levels of intelligence and of math and reading achievement (Brooks-Gunn & Duncan, 1997). LBW children frequently score lower on intelligence tests than do children of normal birth weight, even after controlling for other sociodemographic variables (Hack, Klein, & Taylor, 1995). Low birth weight is 1.7 times more common among poor children than nonpoor children (Federman et al., as cited in Brooks-Gunn & Duncan, 1997).

Lead poisoning is another health problem that occurs more frequently in poor children, as well as those living in older housing (Centers for Disease Control and Prevention (CDC), 2000). Even low levels of lead exposure can have negative effects, and health problems vary with the length and intensity of exposure and the child's developmental stage, with risks beginning before birth (Brooks-Gunn & Duncan, 1997). Lead exposure is associated with health problems such as hearing loss (Schwartz & Otto, 1991) and damage to the renal, endocrine, reproductive, and central nervous systems (Agency for Toxic Substances and Disease Registry, 1993). It is also associated with a decrease in intelligence quotient (IQ) (Schwartz, 1994), a

problem that is discussed in detail later in this module, and with a range of behavior problems (National Research Council (NRC), 2002). Studies using Federal data have repeatedly indicated that poor and minority children are at greater risk for lead poisoning, a risk that is compounded by the fact that low-income families are more likely to live in older housing (Brody et al., 1994; CDC, 1997; President's Task Force on Environmental Health Risks and Safety Risks to Children, 2000). The most recent prevalence data indicate that 8% of children in low-income families have elevated blood lead levels, compared with about 2% of middle-income children and 1% of high-income children. About 11% of Black children have elevated blood lead levels, as do 4% of Mexican American children and 1% of White children (Needleham, as cited in NRC, 2002).

Cognitive Ability and Achievement

The NRC (2002) has noted that child outcomes are indisputably worse in families with low socioeconomic status but that the reasons for this difference are complex. Nonetheless, poorer outcomes, both academically and behaviorally, often result in referrals for special education and related services. This section of the module first reviews some of the studies showing differences in cognitive outcomes by poverty status, then discusses some of the biological and environmental influences on cognitive ability and achievement.

Differences in Ability and Achievement

A number of studies have demonstrated that child poverty is associated with lower scores on standardized ability and achievement tests. In general, the IQ scores of poor children average 5 to 10 points lower than those of middle-class comparison samples, and a greater number of poor children fall into the range of borderline or mild mental retardation (Kaiser & Delaney, 1996)¹. Some of these differences may be due to lead poisoning, which, as noted above, is associated with a decrease in IQ as well as with various physical problems. Poor nutrition and maternal alcohol and tobacco use during pregnancy are other biological factors that are associated with lower achievement (NRC, 2002).

A number of studies have shown that children from lower income families have poorer academic outcomes than do children from middle-class families. For example, one study used National Longitudinal Survey of Youth (NLSY) data to compare children in families with incomes below 50% of the poverty threshold to

¹ Since many standardized ability and achievement tests were developed for and normed on White, middle-class children, test bias may also influence the scores of lower income and minority children.

children whose family incomes were between 1.5 and 2 times the poverty threshold. After controlling for characteristics associated with poverty (e.g., family structure, mother's education), the poorer children scored 6 to 13 points lower on standardized tests of IQ, verbal ability, and achievement (Korenman, Miller, & Sjaastad, 1995). (Many standardized tests have a standard deviation of 10 points.)

Duncan and his colleagues (1994) used the Infant Health and Development Program dataset to investigate poverty and IQ scores in 5-year-olds. The IQ scores of children who had lived in persistent poverty were an average of 9 points lower than those of children who had not experienced poverty at all in their first 5 years of life ($SE = 2.1$), while those who had experienced short-term poverty were an average of 4 points lower ($SE = 1.6$).

In addition to test scores, school outcomes such as high school graduation rates also differ by poverty status. These differences may be related both to cognitive ability and achievement and to behavioral problems, an issue that is discussed later in this module. Data from Series 10 of *Vital Health and Statistics* (as cited in Brooks-Gunn & Duncan, 1997) indicate that poor children are twice as likely as nonpoor children to repeat a grade or to be suspended or expelled. Children from low-income families are also significantly less likely to graduate from high school. In 1999, there was an 11% dropout rate among students whose family incomes were in the bottom 20% of the income distribution. This figure may be compared with the 5% dropout rate among students from middle-income families and the 2.1% dropout rate among those in the top 20% of the income distribution (Kaufman, Kwon, Klein, & Chapman, 2000).

Lead poisoning also has negative effects on cognitive ability and achievement. As previously discussed, research has consistently demonstrated that exposure to lead is associated with lower IQs. According to the National Center for Environmental Health (NCEH, 1998), even low levels of lead exposure have been shown to be related to decreased intelligence. Lead poisoning is also associated with learning disabilities and behavioral problems (National Academy of Sciences, 1993; NCEH, 2001). In a meta-analysis of studies examining the relationship between blood lead levels and IQ in school-aged children, Schwartz (1994) found that an increase in blood lead from 10 to 20 micrograms per deciliter was associated with a decrease of 2.6 IQ points. Since lead poisoning is disproportionately found among poor children (CDC, 1997, 2000), this environmental hazard must be considered as one of the factors that contributes to problems with cognitive development and achievement in this population.

Social and Environmental Influences on Cognitive Development

Although the evidence does suggest that biological factors play a role in achievement differences, those influences are only part of the story. More than 20 years ago, Urie Bronfenbrenner (1979) presented an ecological model of child development suggesting that biology, family, caregivers, school, and other contextual influences all have powerful and reciprocal influences on human development. This seminal research led to the current understanding that “biological and environmental factors are not completely separate parts of the picture. . . . They combine as two pigments in a single paint, together determining a color that neither alone could create” (NRC, 2002, p. 94). Moreover, in the past two decades, researchers have increasingly adopted the view that the number and combination of risk factors in a child’s life have a powerful influence on that child’s development. As the number of stresses rises, the probability of a positive outcome declines (NRC, 2002).

While some of the differences in cognitive ability and achievement discussed above are related to biological factors such as lead exposure, others may be attributed to differences in home and family environments and to multiple risks and the interactions among them. As the NRC (2002) notes, “Children, themselves tremendously diverse in the individual characteristics they bring into the world, develop in family and community contexts that vary widely” (p. 121). Further, poverty “is strongly correlated with less optimal home environments” (NRC, 2002, p. 123).

A wide range of social and contextual factors influence child development and, in turn, affect the likelihood that a child will be referred for special education. For example, many studies have demonstrated that parenting styles, parental responsiveness and sensitivity to the child, and the amount and type of language stimulation provided to the child all strongly influence a child’s intellectual and problem-solving abilities (NRC, 2002).

In addition, early language development is a key element of later school success. Vocabulary size is the single most important predictor of reading success (Anderson & Nagy, as cited in NRC, 2002). But studies have consistently demonstrated that children from low-income families have smaller vocabularies than those from middle-class families (Hart & Risley, 1995) and that there is a connection between parents’ and children’s vocabularies (NRC, 2002). These effects are dramatic: After observing children for a period of nearly 2 1/2 years, Hart and Risley (1995) found that by the time the children were 3 years old, their families’ SES accounted for 42% of the variance in their rates of vocabulary growth, 40% of the variance in their vocabulary use, and 29% of the variance in their measured IQ scores. These

differences may be largely attributable to differences in home environments. The NRC (2002) reports that in a number of studies, “higher-SES mothers have been found to talk to children more, sustain conversation longer, and elicit more response from the child” (p. 125).

Demographic Characteristics Associated With Lower Achievement

In addition to the social and environmental factors discussed above, two family demographic characteristics that are associated with lower academic achievement—single parenthood and lower parental education levels—are found more frequently among poor children and families. Some researchers have suggested that these characteristics are related to school problems that may result in referrals to special education. The NRC (2002) has reported that “poverty is highly correlated with single-parent status, decreasing the parental attention available to the child” (p. 122). Astone and McLanahan (1991) suggest that family structure may be related to low academic achievement and school failure. They note that “children from non-intact families report lower educational expectations on the part of their parents, less monitoring of school work by mothers and fathers, and less overall supervision of social activities than children from intact families” (p. 318).

In their classic longitudinal study of adolescent mothers and their children, Furstenberg and his colleagues (1987) noted that single-parent homes may differ from two-parent homes in that “child supervision is reduced, time spent with the parent is low, and emotional support is difficult in part because of competing demands on a single parent’s time” (p. 107). Although mother’s marital status appeared to have only weak effects on preschool outcomes in the Furstenberg et al. study, at follow-up the researchers found that among adolescents, having a single mother was associated with grade failure and behavior problems (Furstenberg, Brooks-Gunn, & Morgan, 1987). Analyses of ECLS-K data carried out by the National Center for Education Statistics (NCES) found that first-time kindergartners from two-parent families were more likely than those from single-parent families to have reading, mathematics, and general knowledge scores in the highest quartile (NCES, 2000).

Parent education levels may also influence child outcomes. Furstenberg and his colleagues (1987) found that mother’s educational status did not appear to influence children’s scores on a preschool inventory. By adolescence, however, having a mother who did not complete high school was associated with a considerably higher likelihood of grade failure. ECLS-K analyses performed by NCES found that children whose mothers had higher education levels were more likely to score in the highest quartile on all three cognitive measures (NCES, 2000). Zill (1996), reviewing the literature on the link between parent education and child well-being, noted that

parent education level is an important independent determinant of well-being among children.

While single parenthood and lower parental educational attainment are by no means found exclusively among poor families, these demographic characteristics are strongly associated with poverty. NCES analyses of ECLS-K data suggest that mother's education and family type, along with home language and the family's receipt of public assistance, influence not only kindergartners' cognitive skill development but their health and physical well-being, social skills, and approaches to learning (NCES, 2000).

Behavioral Outcomes

Research suggests a link between childhood poverty and behavior problems, although poverty's effects on behavioral outcomes are not as pronounced as its effects on cognitive outcomes (Brooks-Gunn & Duncan, 1997). This link is important because behavior problems frequently result in referrals to special education (NRC, 2002).

An analysis of data from the NLSY on 3- through 11-year-olds looked at behavior problems in poor and nonpoor children. Children who lived in long-term poverty scored three to seven percentile points higher on a behavior problem index than did children from nonpoor families (Korenman et al., 1995). McLeod and Shanahan (1993), also using NLSY data, found that persistent poverty was positively related to the occurrence of internalizing symptoms such as anxiety and unhappiness in 4- to 8-year-olds. This finding held true after controlling for mother's age, education, marital status, and current poverty as determined by family income divided by household size. Current (as opposed to persistent) poverty was associated with greater occurrence of externalizing symptoms, such as hyperactivity and peer conflict.

A study using the Infant Health and Development Program dataset found greater prevalence of both internalizing and externalizing behavior problems in children from persistently poor families. Children whose families experienced short-term poverty also had more behavioral problems than did nonpoor children, although the differences were not as pronounced. Both the short-term and long-term poverty analyses controlled for mother's education and family structure (Duncan, Brooks-Gunn, & Klebanov, 1994).

An analysis of the ECLS-K (NCES, 2000) examined problem behaviors among first-time kindergartners in general and found some differences by family type. The

incidence of problem behaviors was relatively infrequent as reported by both parents and teachers, although parents reported more of these behaviors than did teachers. Single mothers were more likely than respondents from two-parent families to report their children as arguing, fighting, or getting angry often or very often. Similarly, teachers were more likely to rate children from single-parent households as exhibiting problem behavior (NCES, 2000). The NCES analyses did not examine differences in behavior by poverty status.

Some of the differences in behavioral outcomes by poverty status may be due to the biological effects of exposure to substances such as lead, alcohol, and nicotine (see the *Twenty-Second Annual Report to Congress on the Implementation of IDEA* for a discussion of prenatal alcohol and tobacco exposure and NRC, 2002, for a full discussion of all three issues). However, behavioral outcomes are also related to differences in home environment and parenting practices. A number of studies cited in the recent NRC report (2002) indicate that social and economic disadvantage have “strong and negative effects” on parenting practices (p. 123). Research has demonstrated, for example, that “social disadvantage predicted harsh parental discipline, which in turn predicted aggressive child behavior” (Bank et al., as cited in NRC, 2002, p. 123). In addition, researchers have found that preschoolers in low-income welfare families have the highest prevalence of oppositional defiant disorder (Offord et al., as cited in NRC, 2002). Early behavioral problems strongly predict later behavioral problems. As is true of cognitive and academic outcomes, it is likely that a combination of biological and contextual factors contributes to the poorer behavioral outcomes that have been observed among low-income children (NRC, 2002).

Summary of the Literature Review

Although research does not directly link disability among children to poverty status, poor children are more likely than nonpoor children to experience LBW and other health complications related to poor maternal nutrition and health care. These children are also less likely to have the adequate nutrition, housing, and health care that might prevent the development of serious health conditions and disabilities (Meyers, Lukemeyer, & Smeeding, 1996). The studies reviewed here indicate that childhood poverty is associated with lower general health status and with higher levels of health problems such as LBW, asthma, and lead poisoning. In addition, child poverty is associated with problems in cognitive development, behavior problems, and negative school outcomes.

Health problems such as LBW occur more frequently in groups with higher poverty rates, particularly among families headed by single mothers and families in which mothers have lower education levels (Brooks-Gunn & Duncan, 1997). Among

kindergartners, these demographic characteristics also have been linked to lower scores on measures of reading, mathematics, and general knowledge, and to increased reports of behavioral problems (NCES, 2000). Because these relationships may make it difficult to interpret the independent effects of each variable, the study described below examined the effects of poverty and mother's education and family type while controlling for poverty on outcomes such as cognitive assessment scores and social skills ratings for kindergartners with disabilities. The study also attempted to determine the influence of the three explanatory variables, poverty, mother's education, and family type, on the likelihood of having an individualized education program (IEP). Finally, analyses were conducted to determine how poor and nonpoor children differ in terms of demographic characteristics.

Methods

The study described here used spring data from the base year of the ECLS-K, which is being conducted by NCES. The Office of Special Education Programs (OSEP) also contributes funding and support for the study.

The ECLS-K involves direct assessment of children's skills and abilities in order to measure important cognitive and noncognitive outcomes. The cognitive assessment battery included questions in three subject areas: language and literacy, mathematical thinking, and general knowledge. In addition to these direct assessment data, parents and guardians provided information about their children and their households, and teachers provided data about the children and their learning environments. The primary special education teacher or service provider for each child with an IEP also provided data. Since poverty was the primary independent variable of interest and family income data were collected from parents and guardians only in the spring, this study used direct child assessment data, parent data, and teacher data from spring 1999.

The ECLS-K sample included more than 21,000 children. Data were available for 677 kindergartners with IEPs.² Researchers selected weights in consultation with statistical staff and varied according to the type of data that were being analyzed. We used the parent full-sample weight for analyses of child and parent data and the child-parent-teacher full-sample weight for analyses that included teacher data.

² Throughout this module, the terms "children with IEPs" and "children with disabilities" are used interchangeably.

Results

Descriptive statistics for all students with disabilities, based on our analyses of the ECLS-K, are presented in Table I-2. The table includes population estimates for all kindergartners with IEPs, regardless of poverty status.

The mean income of families of children with disabilities was \$40,880, and the median income was \$29,294. To compare kindergartners with IEPs living in poverty with those who were not living in poverty, we began with the 1998 Census Bureau poverty threshold of \$16,660 for a family of four. To account for factors such as regional differences in the cost of living and in accordance with other recent literature (e.g., Duncan & Brooks-Gunn as cited in Duncan, Yeung, Brooks-Gunn, Smith, & Judith, 1998), we used 150% of the poverty level to arrive at a working poverty threshold of \$24,990 for a family of four.³ This threshold was well below the sample's mean and median incomes. The poverty variable was computed by dividing household income by the total number of household members.

About 55% of the families of ECLS-K kindergartners with disabilities reported incomes above the threshold of \$24,990 for a family of four; 45% of children with disabilities lived in households with incomes below this threshold. Thus, for the purpose of these analyses, children whose household income was below 150% of the Federal poverty threshold were considered to be poor. Those whose family incomes were at or above the 150% poverty level were considered nonpoor.

Of the demographic data for all kindergartners with IEPs, two findings were of particular note. Sixty-five percent were male, a difference that is not unexpected given that boys tend to outnumber girls among the special education population (U.S. Department of Education, 1998). In addition, the percentage of kindergartners with IEPs who were poor was higher than one might observe in the general population. The U.S. Department of Education (1997) has noted that poverty among children is associated with educational problems that result in referrals to special education, so this finding is again not surprising.

³ The 150% threshold is also in line with Federal guidelines for free and reduced-price meals. Children in families with incomes below 130% of the Federal poverty guidelines are eligible to receive free meals, while those whose family incomes are below 185% of the guidelines are eligible for reduced-price meals (U.S. Department of Agriculture, 2001).

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Table I-2
Demographic Variables for All Kindergartners With IEPs

	National estimates	
	Number	Percent
Sex		
Male	92,110	65.2
Female	49,100	34.8
Race/ethnicity		
White, non-Hispanic	87,787	62.4
Black	22,630	16.1
Hispanic	23,241	16.5
Asian/Pacific Islander	1,538	1.1
Other	5,428	3.9
Poverty status		
Poor	63,645	45.1
Nonpoor	77,565	54.9
Family type		
Single-parent family/other	38,575	27.3
Two-parent family	102,634	72.7
Mother's education		
Less than high school	26,512	19.3
High school diploma or some college	90,646	65.8
Bachelor's degree or higher	20,543	14.9
Father's education		
Less than high school	15,282	14.4
High school diploma or some college	71,708	67.5
Bachelor's degree or higher	19,189	18.1
Primary disability category		
Speech or language impairment	95,610	65.0
Learning disability	16,988	11.6
Developmental delay	13,975	9.5
Mental retardation	4,301	2.9
Health impairment	3,589	2.4
Physical impairment	3,176	2.2
Autism	2,957	2.0
Multiple impairments	2,776	1.9
Emotional disturbance	2,527	1.7
Deaf/hard of hearing	881	0.6
Blind/visual impairment	224	0.2
Deaf/blind	0	0.0
Family received AFDC/TANF in the last 12 months		
Yes	17,215	12.3
No	122,336	87.7
Family received food stamps in the last 12 months		
Yes	36,326	26.0
No	103,224	74.0

Table I-2 (continued)

	National estimates	
	Number	Percent
Child receives free or reduced-price lunch		
Yes	60,076	67.1
No	29,403	32.9
Child covered by health insurance		
Yes	131,047	93.5
No	9,117	6.5

Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, Base-Year Restricted-Use Special Education Child File.

Demographic Variables

Researchers compared poor and nonpoor kindergartners with IEPs on nine demographic variables: sex, race, family type (two-parent vs. one-parent/other), mother's education, father's education, family receipt of AFDC/TANF in the past 12 months, family receipt of food stamps in the past 12 months, child's receipt of free or reduced-price lunch, and child health insurance coverage (see Table I-3). All of the chi squares were significant ($p < .0001$) except for sex and child health insurance coverage. Nonpoor children with IEPs were more likely to be White and to live in a two-parent family.

The differences in parent education levels were particularly striking. As would be expected, the mothers and fathers of poor kindergartners with IEPs had lower levels of education than did the parents of the nonpoor children. Particularly noticeable were the differences in the percentages of parents who had less than a high school education. Fully a third of mothers of poor children with IEPs did not finish high school, compared with 7% of mothers of nonpoor children with IEPs. Twenty-nine percent of fathers of poor children had less than a high school diploma, versus 7% of fathers of nonpoor children (see Table I-3).

Cognitive Assessment Scores and Social Skills Ratings

The next step in the data analyses was to compare the scaled scores of poor and nonpoor children with disabilities on the three direct cognitive assessments: general knowledge, mathematics, and reading. As Table I-4 shows, poor children with disabilities had lower scores than nonpoor children with disabilities in all three areas ($p < .0001$).

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Table I-3
Demographic Variables for Kindergartners With IEPs by Poverty Status

	Poor	Nonpoor
	Row percent	Row percent
Sex		
Male	64.4	66.0
Female	35.7	34.1
Race/ethnicity		
White, non-Hispanic	46.9	75.2
Black	26.1	7.9
Hispanic	22.2	11.8
Asian/Pacific Islander	0.7	1.5
Other	4.2	3.6
Family type		
Single-parent/other	48.9	15.9
Two-parent	51.1	84.1
Mother's education		
Less than high school	33.8	7.4
High school diploma or some college	63.4	67.8
Bachelor's degree or higher	2.8	24.8
Father's education		
Less than high school	29.1	6.8
High school diploma or some college	68.1	67.2
Bachelor's degree or higher	2.8	26.0
Family received AFDC/TANF in the last 12 months		
Yes	23.3	3.3
No	76.7	96.7
Family received food stamps in the last 12 months		
Yes	52.3	4.3
No	47.7	95.7
Child receives free or reduced-price lunch		
Yes	94.7	35.3
No	5.3	64.7
Child covered by health insurance		
Yes	92.4	94.4
No	7.6	5.6

Note: All comparisons were statistically significant ($p < .0001$) except for sex and health insurance coverage.

Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, Base-Year Restricted-Use Special Education Child File.

Table I-4
Cognitive Assessment Scores and Social Skills Ratings by Poverty Status

	Mean scores	
	Poor	Nonpoor
	(SE)	(SE)
Cognitive skills		
General knowledge	18.75 (0.48)	25.14 ^{b/} (0.58)
Reading	23.33 (0.61)	28.11 ^{b/} (0.66)
Mathematics	19.35 (0.51)	24.47 ^{b/} (0.60)
Parent ratings of social skills		
Approaches to learning	2.90 (0.04)	3.02 ^{d/} (0.04)
Self-control	2.63 (0.06)	2.78 (0.03)
Social interaction	3.22 (0.04)	3.31 (0.04)
Impulsive/overactive ^{a/}	2.28 (0.05)	2.12 ^{d/} (0.04)
Sad/lonely ^{a/}	1.59 (0.03)	1.59 (0.02)
Teacher ratings of social skills		
Approaches to learning	2.57 (0.06)	2.82 ^{c/} (0.06)
Self-control	2.95 (0.04)	3.01 (0.05)
Interpersonal	2.80 (0.05)	2.95 ^{d/} (0.05)
Externalizing problem behaviors ^{a/}	1.87 (0.07)	1.76 (0.05)
Internalizing problem behaviors ^{a/}	1.84 (0.04)	1.72 ^{d/} (0.04)

Notes: Standard errors are in parentheses.

^{a/} On these scales, lower scores are better; on the other social rating scales and the cognitive skills measures, higher scores are better.

^{b/} $p < .0001$.

^{c/} $p < .01$.

^{d/} $p < .05$.

Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, Base-Year Restricted-Use Special Education Child File.

The ECLS-K included parent and teacher ratings of social skills using the Social Rating Scale (SRS). The parent SRS has five subscales—approaches to learning, self-control, social interaction, impulsive/overactive, and sad/lonely—scored on a 4-point Likert-type scale, with 1=Never and 4=Very Often. The teacher SRS, which is scored in the same way, also has five subscales: approaches to learning, self-control, interpersonal, externalizing problem behaviors, and internalizing problem behaviors.

Comparisons of poor and nonpoor kindergartners yielded statistically significant differences on the approaches to learning and impulsive/overactive subscales (see Table I-4). Differences on the self-control subscale approached but did not achieve significance. In each case, nonpoor kindergartners with IEPs scored better than poor kindergartners with IEPs. On the teacher SRS, there were significant differences by poverty status on three subscales: approaches to learning, interpersonal, and internalizing problem behaviors. On each of these subscales, poor children scored worse than nonpoor children (see Table I-4).

Effects of Family Type and Mother's Education

The results reported above indicate that poor and nonpoor kindergartners with IEPs varied in terms of cognitive assessment scores and social skills ratings. However, it is unclear to what extent these effects are attributable to poverty rather than to demographic characteristics such as mother's education and family type that the literature suggests may be associated with lower achievement. For this reason, linear models were developed to analyze the effects of mother's education and family type on kindergartners' cognitive assessment scores and social skills scores while controlling for poverty.

The results of the linear model suggest that poverty had a negative effect, or influence, on all three cognitive assessment scores. (This does not imply that poverty directly caused the scores to be lower; it merely shows that the poverty variable influenced the scores and that the direction of the influence was negative.) Mother's education had the only other significant effect: Among poor kindergartners, children whose mothers had less than a high school education were significantly more likely to have a lower math score. Among nonpoor children, those whose mothers had at least a bachelor's degree had significantly higher scores on all three cognitive measures. Family type did not have an independent effect on cognitive assessment scores after controlling for poverty.

In regard to the SRS scores, poverty alone had a negative effect on teacher ratings of approaches to learning. Among nonpoor children, maternal education of at least a bachelor's degree had a positive effect on teacher ratings of internalizing problem

behaviors. Family type influenced social interaction and impulsive behavior as rated by parents and externalizing problem behaviors as rated by teachers. Kindergartners from poor one-parent families scored worse on those subscales.

One explanation for the apparent overall lack of influence of mother's education and family type is that the final models controlled for poverty. Preliminary analyses showing effects for those two explanatory variables did not control for poverty, which turned out to be strongly associated for both. Thus, the apparent initial effects of mother's education and family type may have been largely attributable to poverty.

Odds Ratio for Having an IEP

Finally, we developed a logistic regression model and calculated an odds ratio to predict the likelihood of having an IEP, using poverty status, family type, and mother's education as predictors. An odds ratio greater than 1.0 indicates a direct or positive relationship between two variables.

Poverty had the only significant main effect at the .05 level. The odds of having an IEP were 1.5 times greater for children living in poverty (95% confidence interval, 1.15, 1.97). The interactions of family type and mother's education were not significant.

Discussion

The findings of this study are limited for several reasons. The ECLS-K was not designed for making comparisons between groups of students based on poverty status, nor was it designed specifically to look at children with disabilities. Another significant limitation is the age of the children at the time the base-year data were collected, since kindergartners have a very different disability distribution than do older children. Data collected in later years of the study may prove more useful for research on students with disabilities. In addition, because the ECLS-K did not oversample for children with IEPs, this subpopulation accounts for only a small proportion of the full sample.

These limitations notwithstanding, the analyses of the ECLS-K reported here yielded some interesting findings. Poor and nonpoor kindergartners with disabilities in this study differed on most demographic variables. Poor kindergartners with IEPs scored lower on all three cognitive assessment measures and on several of the parent and teacher SRS subscales. Poor children were 1.5 times more likely to have an IEP than were nonpoor children. The findings reported here suggest that mother's education

and family type have few effects on outcomes for kindergartners with IEPs when controlling for poverty.

OSEP's current longitudinal studies of students with disabilities, particularly the Special Education Elementary Longitudinal Study (SEELS), the second National Longitudinal Transition Study (NLTS2), and the upcoming Pre-Elementary Longitudinal Study (PEELS), will provide information about poverty status and students with disabilities. OSEP's longitudinal studies will also be uniquely situated to provide data on how poor students with IEPs fare over time and on the demographic differences between poor and nonpoor students with disabilities, as well as possible differences in services and teacher characteristics that were not examined here.

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Use of the Developmental Delay Classification for Children Ages 3 Through 9

The Individuals with Disabilities Education Act (IDEA) Amendments of 1991 (P.L. 102-119) amended the definition of “children with disabilities” under Part B to include children ages 3 through 5 who were experiencing developmental delays. This change allowed states to look at a young child’s physical, cognitive, communication, social/emotional, and adaptive development to determine if the child needed special education and related services. A state could, at its own discretion, define “developmental delay” to ensure that all eligible preschool-aged children with disabilities were provided a free appropriate public education without being inappropriately labeled under one of the other disability categories used for school-aged children and youth. The IDEA Amendments of 1997 added some additional requirements pertaining to states’ use of developmental delay. Congressional intent is clearly stated in the amendments’ legislative history:

“[t]he bill expands the definition for service eligibility in part B called “developmental delay,” to be used at state and local discretion, for children ages three through nine. The use of a specific disability category to determine a child’s eligibility for special education and related services frequently has led to the use of the category to drive the development of the child’s Individualized Education Program (IEP) and placement to a greater extent than the child’s needs. The committee believes that, in the early years of a child’s development, it is often difficult to determine the precise nature of the child’s disability. Use of “developmental delay” as part of a unified approach will allow the special education and related services to be directly related to the child’s needs and prevent locking the child into an eligibility category which may be inappropriate or incorrect, and could actually reduce later referrals of children with disabilities to special education” (S. Rep. No. 105-17, 1997, pp. 6-7).

The 1997 amendments included three overall changes to previous developmental delay requirements. The age range to which developmental delay may apply was expanded to cover ages 3 through 9, and use of the developmental delay category for this expanded age range was stipulated as optional for states. In addition, once a state has adopted use of developmental delay, defined the term, and established an age range, local education agencies (LEAs) were given the option of using or not using the classification.

The regulations implementing the new developmental delay requirements (34 CFR §300.313) clarify the statutory language. First, the regulations stipulated that states may adopt the term “developmental delay” and determine whether it applies to children ages 3 through 9 or to a subset of that age range. The state also defines the term. The state may not require LEAs to use developmental delay, but any LEA that opts to use it must conform to both the state’s definition of the term, as well keep within the state’s age range. No LEA can use developmental delay absent the state’s adoption of the term and establishment of a definition and applicable age range. Finally, the regulations state that the other 13 disability categories may continue to be used for children who fall within the state’s prescribed developmental delay age range.

These changes to the statute and regulations raised a series of questions about the long-term implications of expanding the age range through age 9. To answer those questions, the Office of Special Education Programs (OSEP) and the Centers for Disease Control and Prevention’s (CDC) National Center for Environmental Health co-funded a project in August 1999 to examine the use of developmental delay through age 9 in states, identify issues affecting states’ decisions, and consider options reflecting various ways developmental delay can be implemented above age 5. The project was to study whether the expanded age range would increase the number of children served under IDEA, thus leading to increased costs for providing services or possible misidentification of children. The project was also to study whether developmental delay would simply be an alternate way of reporting students who would otherwise be eligible under one of the 13 disability categories under Part B or if children classified as developmentally delayed have a distinct set of characteristics separating them from any of the other 13 categories of disability. CDC’s interest was based on its approach to serving children with developmental delays from an interdisciplinary approach that remediates skill deficits within the context of the family.

The study involved an in-depth survey of state practices on the use of the developmental delay classification for preschool-aged children as well as for children ages 6 through 9. The appendix at the end of this module is a summary chart of developmental delay age ranges and classification criteria across states. Twenty states reported using developmental delay above age 5, while other states said they were considering expanding the age range above 5. Use of some or all of the 13 Part B disability categories in conjunction with developmental delay varies among states. In some instances, states continue to use all 13 disability categories in addition to developmental delay, while other states subsume one or more Part B categories under the definition of developmental delay. There is also variation in the definition of developmental delay, including eligibility criteria. For example, some states use two standard deviations below the mean in one developmental area and/or one and a half standard deviations below the mean in two developmental areas, while other

states use percent delay in one or two developmental areas (National Association of State Directors of Special Education, 2000). Sometimes other criteria in addition to quantitative scores are used to determine eligibility, such as diagnosed conditions, professional judgment, or informed clinical opinion (Danaher, 2001).

OSEP was concerned that using developmental delay above age 5 could greatly expand the population of children served under IDEA. Public comments on the proposed regulations implementing the IDEA Amendments of 1997 revealed concern about local option to use developmental delay (*Federal Register*, 1999). In response to these issues, researchers conducted surveys and held focus groups with state Section 619 preschool coordinators, state directors of special education, and school psychologists. Only one fifth of state directors and school psychologists felt there would be significant increases in the number of children being served under IDEA; one third of both groups thought there would be little change, and one third of both groups felt there would be moderate increases (Simeonsson et al., 2001). Only 5% of the state Section 619 coordinators believed there would be a substantial increase in the number of children served (Simeonsson et al., 2001). Local option to use developmental delay did not appear to be a problem. Ninety-six percent of state directors responding to the survey reported that inconsistencies across LEAs do not exist because 95% or more of their LEAs elected to use developmental delay (Simeonsson et al., 2001).

The surveys and focus group results revealed other areas likely to be affected by the extension of developmental delay above age 5. Some of these areas included training and technical assistance, implementation and programming, family issues, identification and referral, funding mechanisms, assessments, and transition from developmental delay to another Part B category or out of special education (Simeonsson et al., 2001).

In general, the research suggests a positive, child-oriented attitude about using developmental delay both for preschool-aged children as well as for children above age 5. Using developmental delay into the elementary school years was seen as a benefit because it would:

- serve children earlier who would later be found eligible for special education, i.e., keep children from “falling through the cracks”;
- keep a functional and service focus on the child rather than deficit-oriented labels that tend to drive services;
- provide more age appropriate assessments and eligibility determinations for the early elementary years when instruments for determining some specific disability categories are limited or nonexistent;

- continue to serve children who may not meet specific categorical criteria; and
- provide a smoother transition from preschool into kindergarten or first grade (Simeonsson, 2001).

Simeonsson et al. (2001) also provide philosophical underpinnings as guidance for states to consider as they study changes in state policy and service delivery systems. These considerations include the premise that developmental delay focuses on functional limitations of the whole child rather than characteristics specific to a Part B disability category. Services can be coordinated from a variety of sources and targeted to address a child's functional levels rather than providing a standard menu of services in response to the diagnostic label of a child. Using developmental delay through age 9 allows for continuity of services throughout the developmental years without a stigmatizing label that may be associated with a specific disability category. Finally, emphasis on functional needs, or a noncategorical approach, may help reduce later referrals to special education. Designing programs based on functional needs also aligns with CDC's interdisciplinary approach to treating the "whole person" (Simeonsson et al., 2001).

Simeonsson et al. (2001) present options for states to consider during the decision-making process of whether to use developmental delay above age 5. First, a child eligible for special education under one of the 13 categories could be identified as developmentally delayed rather than assigned another, potentially more stigmatizing, disability category. Developmental delay would be the term used to describe any child with a disability but would not be a discrete additional category. Second, developmental delay could be a discrete category of disability used as a last resort, (i.e., when the child's assessed characteristics do not fit the eligibility requirements of any of the 13 existing categories). Third, developmental delay could be a discrete additional category based on functional limitations regardless of whether eligibility criteria under one of the existing 13 categories were met. A fourth option is a hybrid category so that developmental delay would not be a discrete category but would subsume any existing category or categories for which the criteria of functional limitations would be sufficient to determine eligibility. This option looks at multiple developmental domains that, taken individually, would be assigned to a specific disability category and eliminates the need to determine which disability should be the child's "main" disability for categorization and service delivery purposes. The final option is a noncategorical approach for all children with disabilities. This option focuses on functional limitations associated with characteristics needed for learning, regulation of behavior, communication, mobility, seeing and listening, use of limbs and extremities, literacy and numeracy ability, and daily living skills.

Changes in Numbers of Children Served

In Table I-5, Part B annual child count data collected by OSEP for school years 1999-2000 and 2000-01 show the change in use of developmental delay above age 5. The figures indicate that there has not been a substantial increase in the number of children served under Part B. In fact, the number of 6- through 9-year-old children served decreased from 1,730,414 in 1999-2000 to 1,710,389 in 2000-01. There was a small increase in children ages 6 through 9 categorized as developmentally delayed (from 19,304 to 28,935 students), which could reflect the fact that more states used developmental delay above age 5 in 2000-01 than in the previous year.

State-reported data indicate a steady increase in the number of states expanding use of developmental delay above age 5. In 1999-2000, 18 states used developmental delay above age 5, but did not necessarily use it for the full 6-through-9 age range. By 2000-01, 20 states had expanded their age range above age 5, again not necessarily for the entire 6-through-9 age range. Most of the children who are served as developmentally delayed above age 5 are 6 years old.

States continue to study the option of using developmental delay for children with disabilities above age 5. Although half of the states have extended use of the classification to 6- through 9-year-olds, there has not been a surge in the numbers of children 6 through 9 served as developmentally delayed. Beginning at age 3, there is a steady decrease in the developmental delay classification as chronological age increases. During 2000-01, 33.4% of 3-year-olds were reported as developmentally delayed, compared to 29.8% of 4-year-olds, and 16.9% of 5-year-olds.

Use of developmental delay continues in all but two states that adopted it. Nearly 25% of preschool-aged children with disabilities are categorized as developmentally delayed. Comparative data to show if this number is increasing are not yet available because 2000-01 was the first year that child count data for 3-, 4-, and 5-year-old children were reported by disability category. The options for using developmental delay in relation to the other 13 disability categories for preschoolers are similar to the recommendations set forth by Simeonsson et al. (2001). Danaher (2001) reports that some states use developmental delay for the age range to which it applies only after considering other disability categories. More than half of the states add developmental delay to the list of Part B categories (i.e., developmental delay is a discrete, 14th category).

Table I-5
Total Number of 6-, 7-, 8-, and 9-Year-Old Students With Disabilities and Number With Developmental Delay for School Years 1999-2000 and 2000-01

	All 6-year-olds with disabilities	6-year-olds with DD	All 7-year-olds with disabilities	7-year-olds with DD	All 8-year-olds with disabilities	8-year-olds with DD	All 9-year-olds with disabilities	9-year-olds with DD
School year 1999-2000	328,674	10,021	397,967	5,153	470,944	3,103	532,830	1,027
School year 2000-01	331,439	14,593	393,828	8,278	463,958	4,491	521,164	1,573

Source: U.S. Department of Education, Office of Special Education Programs, Data Analysis System (DANS).

Summary

The IDEA Amendments of 1997 extended the use of the term developmental delay for 6- through 9-year-olds at states' discretion. OSEP and the CDC commissioned a study of how states have used the term since the 1997 amendments. Twenty states reported using the developmental delay option for children over 5, while other states said they are considering doing so. State-reported data suggest that there has been no surge in the number of children reported to be receiving services under IDEA and that use of the developmental delay option steadily decreases as chronological age increases.

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Appendix

Summary Table of Early Childhood Special Education Eligibility Criteria in the States, District of Columbia, American Samoa, and Guam as of October 2001

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
AL	"Developmental delay": 2 SD in one area 1.5 SD in two areas Supporting evidence on criterion-referenced or other norm-referenced instrument and evidence delay adversely affects performance of age-appropriate activities	3 through 8	<i>Used:</i> All	R 1/01
AK	"Early childhood developmentally delayed": 2 SD or 25% delay in one area 1.7 SD or 20% delay in two areas	3 through 8	<i>Used:</i> All <i>Restriction:</i> "Early childhood developmentally delayed" used as a last resort	G 9/01
AS	None	N/A	<i>Used:</i> All	
AZ	"Preschool moderately delayed": 1.5 SD in two areas "Preschool severely delayed": More than 3 SD in one area "Preschool speech/language delayed": 1.5 SD and assessment indicates child not eligible under a different category <i>plus</i> Parent input, comprehensive developmental assessment and preponderance of information	3 to "required age for kindergarten" (LEA may admit child within 90 days of third birthday but receives no state or Federal funds until date of third birthday)	<i>Used:</i> Hearing, vision impairment <i>Subsumed:</i> All others	L 5/00

Use of the Developmental Delay Classification for Children Ages 3 Through 9

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{d/}	Age range for DD or early childhood-specific category ^{d/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{e/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
AR	<p>"Noncategorical": Means a condition of developmental delay which impairs a child's functioning 2 SD in one area 1.5 SD in two areas Delays in self-help and motor skills (gross and fine) can be expressed in months, percentile, or age equivalents using criterion-referenced tests: 3 years: 11 months, <13 percentile, 2 yr 1 mo or less—one area 8 months, <7 percentile, 2 yr 4 mo or less—two areas 4 years: 14 months, <3 percentile, 2 yr 10 mo or less—one area 11 months, <7 percentile, 3 yr 1 mo or less—two areas 5 years: 18 months, <3 percentile, 3 yr 6 mo or less—one area 14 months, <7 percentile, 3 yr 10 mo or less—two areas</p>	3 through 5	<i>Subsumed:</i> Mental retardation, emotional disturbance, learning disability	R 6/00
CA	"Individual with exceptional needs" has disabling condition per 34 CFR 300.7 or, "established medical disability"	3 through 5	<i>Subsumed:</i> All	L 1/00
CO	<p>"Preschool child with a disability": 1.5 SD in one area or 7 percentile or standard score of 76 <i>or</i> Has identifiable condition known to be associated with significant delays in development <i>or</i> Informed opinion of assessment team with written documentation</p>	3 through 5	<p><i>Used:</i> All <i>Restriction:</i> "Preschool child with a disability" used as a last resort</p>	R 3/99

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
CT	"Developmental delay": Significant delay in one or more areas	3 through 5	<i>Used:</i> All	L 1998
DE	"Developmental delay" — 3-year-olds only (categorical for 4-year-olds): 2 SD in one area 1.5 SD in two areas <i>or</i> Professional judgment of IEP team based on multiple sources of information and written justification	3 only	For 3-year-olds— <i>Used:</i> Autism, deaf-blindness, hearing impairment, severe and trainable mental disability, physical impairment, traumatic brain injury, visual impairment <i>Subsumed:</i> Learning disability, emotional disturbance, educational mental disability For 3- and 4-year-olds <i>Used:</i> Preschool speech delay For 4-year-olds <i>Used:</i> All others	R 7/00
DC	Uses Part B categories only	N/A	<i>Used:</i> All	
FL	"Developmentally delayed": 2 SD or 25% delay in one area 1.5 SD or 20% delay in two areas <i>or</i> Informed clinical opinion	3 through 5	<i>Used:</i> All	R 5/00
GA	"Significant developmental delay": 2 SD in one area 1.5 SD in two areas	3 through 7	<i>Used:</i> All	R 8/01
GU	"Developmental delay"	B through 5		O 2/01 pc

Use of the Developmental Delay Classification for Children Ages 3 Through 9

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{d/}	Age range for DD or early childhood-specific category ^{d/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{d/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
HI	<p>"Developmental delay":</p> <p>1.5 SD in one area, except if the area is cognitive, then adaptive development must also be 1.5 SD below the mean (3 through 5)</p> <p>1.5 SD in 3 areas (6 through 8)</p> <p>or</p> <p>Team, including parent, determines that patterns of learning deviate from age expectations across settings and provides the basis and method used in determining eligibility</p>	<p>3 through 8</p> <p>Note: Different criteria for 6 through 8</p>	Used: All	R 6/00
ID	<p>"Developmental delay":</p> <p>Used when other disability categories do not apply</p> <p>2 SD or 30% delay in age equivalency or function at less than the 3rd percentile in one area</p> <p>1.5 SD or 25% delay in age equivalency or function at less than the 7th percentile in two or more areas</p> <p>or</p> <p>Professional judgment</p> <p>LEAs may apply for and use noncategorical waiver</p>	3 through 9	<p>Subsumed: Learning disabled (for 3 through 5)</p> <p>Used: All others</p> <p>Restriction: "Developmental delay" used as a last resort</p>	R 4/00 and G 4/97
IL	<p>"Developmentally delayed":</p> <p>Meet the criteria of one or more of the other disability categories and are experiencing delay in at least one area</p>	3 through 5	Used: All	R 5/00
IN	<p>"Developmental delay":</p> <p>2 SD in one area</p> <p>1.5 SD in two areas</p>	3 through 5	Used: All	R 6/00

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{d/}	Age range for DD or early childhood-specific category ^{d/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{d/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
IA	SEAs and LEAs may identify students with disabilities using either a categorical or noncategorical model. "...diagnosis of specific disability, such as autism or sensory impairment may enhance the development and ongoing provision of an appropriate educational program."	N/A	<i>Used: All</i>	R 2/00
KS	"Early Childhood Disability": Significant delay in one or more developmental areas	3 through 5	<i>Subsumed: All</i>	R 5/00
	"Developmental delay": Definition as per Federal regulations	6 through 9	<i>Used: All</i>	
KY	"Developmental delay": 2 SD in one area 1.5 SD in two areas <i>or</i> Professional judgment of significant atypical quality or pattern of development if normed scores are inconclusive and there is written documentation	3 through 8	<i>Used: All</i>	R 9/00
LA	"Developmental delay": 1.5 SD or 25% delay in one area	3 through 8	<i>Used: All</i>	O 4/00
ME	"Developmental delay": Parent report, informed clinical judgment, standardized measures where appropriate 2 SD or 25% delay in one area 1.5 SD or 15% delay in two areas <i>or</i> 1 SD or 10% delay in one area, plus established biological risk factors	Birth through 5	<i>Used: All for ages 3 through 5 (the birth through 2 program under Part C of IDEA uses only "developmental delay")</i>	R 6/00

Use of the Developmental Delay Classification for Children Ages 3 Through 9

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
MD	"Developmental delay": 25% delay in one area <i>or</i> Atypical development or behavior <i>or</i> Diagnosed condition with high probability of delay	3 through 5	<i>Used: All</i>	O 10/01 pc
MA	"Developmental delay": Learning capacity significantly limited, impaired, or delayed and is exhibited by difficulties in one or more areas	3 through 9	<i>Used: All</i>	R 9/00
MI	"Preprimary impaired": 50% delay in one or more areas, measured by more than one developmental scale, which cannot be resolved by medical or nutritional intervention (use only if one of the categories is not clearly differentiated)	3 through 5	<i>Used: All</i> <i>Restriction: "Preprimary impaired" used as a last resort</i>	R 4/97
MN	"Developmental delay": 1.5 SD in two areas <i>or</i> Medically diagnosed syndrome or condition <i>or</i> Professional judgment (i.e., team override)	3 through 6	<i>Used: All</i>	R 6/00
MS	"Developmental delay": 1.5 SD or 25% delay in two areas <i>or</i> Diagnosis of disorder of known etiology or chronic or acute medical condition by physician with research to support predicted delays	Birth through 5	<i>Used: All</i>	P 4/00

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
MO	<p>"Young Child with a Developmental Delay": 2 SD or equivalent levels in one area 1.5 SD or equivalent levels in two areas or Professional judgment – significant deficit that does not meet stated criterion; or, functioning above criterion due to intensive early intervention, to avoid regression</p>	3 through 5 if identified prior to age of kindergarten eligibility	<i>Used: All</i>	P 4/00
MT	<p>"Child with disabilities... ages 3 through 5": experiences a severe delay in development, meets criteria of one of the disability categories or 2 SD in one area 1.5 SD in two areas</p>	3 through 5	<i>Subsumed: All</i>	R 7/00
NE	<p>"Developmental delay": 2 SD in one area 1.3 SD in two areas or Informed clinical opinions of qualified professionals in consultation with the family or Diagnosed condition with high probability of resulting in a substantial delay</p>	Birth through 8+ (at discretion of LEA beyond age 5)	<i>Used: All</i>	R 10/00
NV	<p>"Developmentally delayed": 2 SD in one area 1 SD in two areas</p>	3 until age 6 on or before 9/30 of current school year	<i>Used: All</i>	R 2/00
NH	<p>"Developmental delay": Has impairment in development <u>and</u> has been determined to have one of the other educationally disabling conditions</p>	3 through 9	<i>Used: All</i> <i>Restriction: Must be determined to have one of the other educationally disabling conditions</i>	R 7/01

Use of the Developmental Delay Classification for Children Ages 3 Through 9

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{d/}	Age range for DD or early childhood-specific category ^{d/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{e/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
NJ	"Preschool disabled": Identified disabling condition or measurable developmental impairment	3 through 5	<i>Used:</i> All	R 6/00
NM	"Developmentally delayed": 2 SD or 30% in one area <i>or</i> Professional judgment of qualified evaluator and IEP team	3 through 9	<i>Used:</i> All <i>Restriction:</i> "Developmentally delayed" used as a last resort	O 12/00
NY	"Preschool student with a disability": 2 SD or 33% delay in one area 1.5 SD or 25% delay in two areas <i>or</i> 12-month delay in one or more areas	3 through 4	<i>Used:</i> Autistic, deaf, deaf-blind, hearing impaired, orthopedically impaired, other health impaired, traumatic brain-injured, visually impaired <i>Subsumed:</i> Mentally retarded, multiple disabilities, emotionally disturbed, learning disabled, speech or language impaired	R 1/00
NC	"Developmentally Delayed": (a) Delayed/Atypical Development 2 SD or 30% delay in one area 1.5 SD or 25% delay in two areas <i>and</i> Informed educational/clinical opinion and appropriate assessment measures <i>or</i> (b) Delayed/Atypical Behavior Evidence that the patterns of behavior occur in more than one setting over an extended period of time. (i) For ages 3-5, one or more of the following: a. delayed or abnormalities in achieving milestones and/or difficulties with issues, such as:	3 through 7	<i>Used:</i> All	R 8/00

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
NC (cont'd)	<ol style="list-style-type: none"> 1. attachment and/or interaction with other adults, peers, materials, and objects; 2. ability to communicate emotional needs; 3. ability to tolerate frustration and control behavior, or 4. ability to inhibit aggression. <p>b. Fearfulness, withdrawal, or other distress that does not respond to comforting or interventions;</p> <p>c. Indiscriminate sociability, for example, excessive familiarity with relative strangers; or</p> <p>d. Self-injurious or other aggressive behavior.</p> <p>(ii) ages 6-7, two or more of the following:</p> <ol style="list-style-type: none"> a. the inability to interact appropriately with adults and peers; b. the inability to cope with normal environmental or situational demands; c. the use of aggression or self-injurious behavior, or d. the inability to learn due to social/emotional deficits. <p>(iii) Identification based on informed educational/clinical opinion and appropriate assessment measures.</p>			

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
ND	<p>"Non-categorical delay": 2.0 SD or 30% delay in one area, 1.5 SD or 20% in two areas or Syndromes and disorders associated with disability; children functioning above stated criteria but eligible based on expected regression if intervention discontinued; children affected by severe environmental deprivation such as both parents being developmentally disabled Use limited to unclear diagnosis and well documented delay</p>	3 through 5 (through the end of the school year in which the child turns 6)	<p><i>Used:</i> All <i>Restriction:</i> Use limited to unclear diagnosis and well documented delay</p>	R 12/99
OH	<p>"Preschool child with a disability": 2 SD in one area 1.5 SD in two areas or Meets specific criteria for vision or hearing deficit</p>	3 through 5	<i>Subsumed:</i> All	R 12/00 (Draft 2.0)
OK	<p>"Developmental delay": 2 SD or 50% in one area 1.5 SD or 25% delay in two areas For ages 6 – 7 may use categorical criteria</p>	3 through 7	<i>Used:</i> Deaf blindness, deafness or hearing impairment, visual impairment including blindness	R 4/00 (Draft)
OR	<p>"Developmental delay": 1.5 SD in two areas (Birth to 3, 3 to 5 years) 2.0 SD in one area (Birth to 3 years)</p>	Birth to age of eligibility for kindergarten	<i>Used:</i> All	R 5/00
PA	<p>"Developmental delay": 1.5 SD or 25% delay in one area</p>	3 to kindergarten entry, could be 5.5 years as set by LEA	<i>Used:</i> All	R 6/01

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
RI	<p>"Developmental delay": 2 SD or 25% delay in one area 1.5 SD in two areas or Diagnosed condition which would adversely affect educational performance</p>	3 through 5	<i>Used: All</i>	R 12/00
SC	<p>"Preschool child with a disability": 2 SD in one area 1.5 SD in two areas or Meets state criteria for selected categories</p> <p>Pilot – Significant developmental delay 2 SD in one area 1.5 SD in two areas</p>	<p>3 through 5</p> <p>Pilot - 6 through 8 or any subpart</p>	<i>Subsumed: All</i>	R 10/99 O 4/00
SD	<p>"Developmental delay": Has Part B disability or severe delay which is defined as 2 SD in one area 1.5 SD in two areas</p>	3 through 5	<i>Used: All</i>	R 9/98
TN	<p>"Developmental delay": 2 SD or 40% delay in one area 1.5 SD or 25% delay in two areas and Professional observation in the child's natural environment and Interview with family member documenting child's strengths and needs</p>	3 through 9 (initial eligibility before age 7)	<p><i>Used: All</i></p> <p>TN also uses a "functionally delayed" category of disability</p> <p><i>Restriction: "Developmental delay" used as a last resort, initial eligibility before age 7</i></p>	R 7/00 Proposed

Use of the Developmental Delay Classification for Children Ages 3 Through 9

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{d/}	Age range for DD or early childhood-specific category ^{d/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{d/} restriction on DD/EC category ^{d/}	Source ^{d/} and date ^{f/}
TX	"Noncategorical Early Childhood": May be used when a child meets criteria for learning disability, mental retardation, emotional disturbance, or autism, or when evaluation data establish a belief that the child meets the requirements for one or more of these categories	3 through 5	<i>Used:</i> All <i>Subsumed:</i> learning disabled, mental retardation, emotional disturbance, autism	R 3/01
UT	"Developmental delay": 2.5 SD or < 1 percentile in one area 2.0 SD or < 2 percentile in two areas 1.5 SD or < 7 percentile in three areas	3 through 7	<i>Used:</i> All <i>Restriction:</i> "when adequate evaluation data are available, children must be classified in one of the other specific disabilities categories"	R 6/00
VT	"Eligible for essential early education": 40% delay in one area <i>or</i> Medical condition that may result in significant delays <i>or</i> If a child receives special instruction, developmental therapy services, or speech services through an IFSP, eligibility is established until 3 years from initial Part C eligibility	3 through 5	<i>Used:</i> None	R 3/00
VA	"Developmental delay": Delay in one or more areas (local standards used, 25% delay or 1.0 SD per anecdotal reports)	2 through 8 (2 through 5 required, 5 through 8 optional)	<i>Used:</i> All	R 1/01
WA	"Developmental delay": Child meets criteria for developmental delay — 2 SD in one area 1.5 SD in two areas (does not apply for 6 through 8) <i>or</i> Qualify for one of the Part B categories	3 through 8 Note: Different criteria for 6 through 8	<i>Subsumed:</i> All	R 1/00

Appendix (continued)

State	Developmental delay (DD) or early childhood-specific category/classification and criteria ^{a/}	Age range for DD or early childhood-specific category ^{b/}	Use of Part B categories (those used, those subsumed in definition of DD) ^{c/} restriction on DD/EC category ^{d/}	Source ^{e/} and date ^{f/}
WV	"Preschool special needs": 25% delay in two areas	3 through 5	<i>Subsumed:</i> All	R 1/00
WI	"Significant developmental delay": 1.5 SD in two areas or other appropriate measures. Other suspected handicapping conditions shall be considered	3 through 5 or below compulsory school age	<i>Used:</i> All <i>Restriction:</i> "Significant developmental delay" used after other categories considered	R 2/97 O 4/97, 8/98
WY	"Developmental disability": Child does not qualify in other categories; 2 SD in one area 1.5 SD in two areas <i>and</i> Confirmation of developmental disability through observation data and information obtained from the child's parent(s), teachers, and/or primary caregivers.	3 to enrollment in a public school program	<i>Used:</i> All <i>Restriction:</i> "Developmental disability" used as a last resort	R 5/00

How To Read This Table

- a/ Contains the state's term(s) in quotation marks for disability category used only for young children, typically in the age range 3 through 9 or a subset thereof. Contains the eligibility criteria for said term(s).
Criteria for early-childhood-specific eligibility categories typically reference a child's status in one or more developmental areas. The term "area" in this column refers to developmental area. Although states vary somewhat, most list five areas (or some variation thereof): cognitive, language, physical, psychosocial, and self-help. SD refers to standard deviations below the mean on a norm-referenced standardized instrument.
- b/ States may change their developmental delay age range at any time, so numbers presented here are subject to change.
- c/ "Used" indicates which Part B disability categories are used for children in the early childhood age range designated by the state.
"Subsumed" indicates which Part B disability categories the state includes within its definition or criteria for DD or for its early childhood-specific category; developmental delay is used for categories such as learning disabilities which may be difficult to definitively diagnose in younger children.
- d/ "Restriction" indicates whether the state policy is to use developmental delay, or other disability term specific to early childhood, only if the child is not eligible under another category but meets the criteria for developmental delay, or other term.
- e/ R -- Rules or regulations; G -- Guidance document such as Guidelines, Handbook; L -- state law, statute, code; O -- Other - correspondence, memo distributed within the state on implementing eligibility policy; P -- state's plan and procedures for implementing IDEA submitted to OSEP; Subscript (pc) - personal communication from Section 619 Coordinator or other state official.
- f/ Date on the source document, date effective, or most recent date acknowledged. For example, some state documents on-line may show the most recent date that volume of regulations was updated. It may not mean that the regulations for special education changed on that date. NASDSE's FORUM project has provided leadership in the National State Policy Database and maintains a table of expected state regulations revisions. Many states have revised their regulations very recently or are in the process of doing so.