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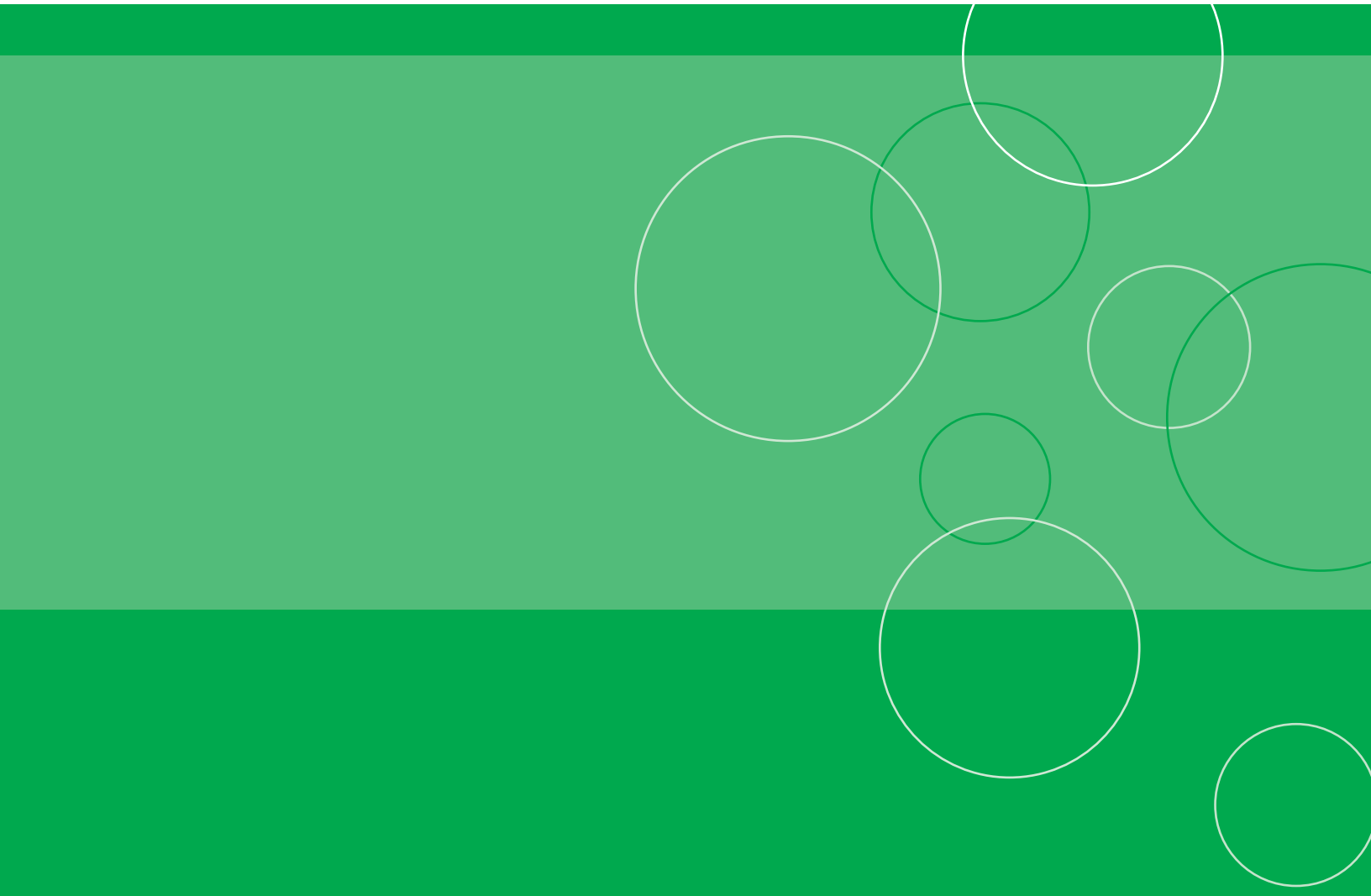
Access to Educational and Community Activities for Young Children with Disabilities

Selected Findings from the Pre-Elementary Education Longitudinal Study (PEELS)



NCSER 2011-3000

U.S. DEPARTMENT OF EDUCATION

Access to Educational and Community Activities for Young Children with Disabilities

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NCSER 2011-3000

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The Pre-Elementary Education Longitudinal Study (PEELS) has been funded by the U.S. Department of Education, Institute of Education Sciences, under contract number ED-04-CO-0059. The content of this publication does not necessarily reflect the views or policies of the U.S. Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

This report was prepared for the Institute of Education Sciences under Contract No. ED-04-CO-0059. The project officer is Kristen Lauer in the National Center for Special Education Research.

October 2010

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Suggested Citation

Carlson, E., Bitterman, A., and Daley, T. (2010). Access to educational and community activities for young children with disabilities. Rockville, MD: Westat. Available at www.peels.org.

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Executive Summary

A series of federal laws have laid the groundwork for integrating individuals with disabilities into schools and communities; these laws include the Education of the Handicapped Act (P.L. 94-142, later amended and renamed the Individuals with Disabilities Education Act [IDEA]), the Rehabilitation Act of 1973 (P.L. 93-112), and the Americans with Disabilities Act (P.L. 101-336). Furthermore, the New Freedom Initiative of 2001 was designed to improve access to community life for individuals with disabilities through enhanced use of technology, high-quality education, and rigorous enforcement of existing laws. Community integration or community access can mean different things at different ages. For adults, it may include transportation, employment, and access to higher education and appropriate social supports. For children, it may include involvement in extracurricular activities, participation in family life, and access to an appropriate education.

This report uses data from the Pre-Elementary Education Longitudinal Study (PEELS) to describe access for young children with disabilities in two specific domains: community activities, including extracurricular activities and family recreation, and kindergarten classroom experiences. While research has been conducted on children's access to and participation in community activities and kindergarten experiences, those studies primarily focused on describing experiences for *all* children (Afterschool Alliance 2008; Fredericks and Eccles 2006; Guarino, Hamilton, Lockwood, and Rathbun 2006; Harrison and Narayan 2003; National Institute on Out-of-School Time 2003; Princiotta, Flanagan, and Germino-Hausken 2006; Rathbun, West, and Germino-Hausken 2004; Soukup, Wehmeyer, Bashinski, and Bovaird 2007; West, Denton, and Germino-Hausken 2000; West, Denton, and Reaney 2001). This report adds to the literature by focusing on access to and participation in community activities and kindergarten experiences for *young children with disabilities* and how access and participation may vary by child, family, and school district characteristics.

PEELS, which is funded by the U.S. Department of Education, is examining the characteristics of children receiving preschool special education, the services they receive, their transitions across

educational levels, and their performance over time on assessments of academic and adaptive skills. PEELS includes a nationally representative sample of 3,104 children with disabilities who were ages 3 through 5 when the study began in 2003-04. The children were followed through 2009. PEELS data were collected through several different instruments and activities, including a direct one-on-one assessment of the children, a telephone interview with their parents/guardians, and mail questionnaires to the teacher or service provider of each child. This report provides selected findings from the first four waves of data collection—school years 2003-04, 2004-05, 2005-06, and 2006-07. Any reported differences have been tested for statistical significance at the $p < .05$ level.

While PEELS is a broad, descriptive study, the analyses presented in this report are designed to address four questions related to children's access to community and educational activities:

- In what types of community activities are children with disabilities ages 5 through 7 engaged?
- How do specific attributes, such as gender, disability, and household income, and potential barriers, such as access to adequate transportation and safety of neighborhoods, relate to involvement in those activities?
- What are the kindergarten experiences of young children with disabilities in terms of access to the general curriculum, enrollment in classes with peers without disabilities, instructional strategies, and full-day/part-day programs?
- How do these kindergarten experiences vary by district size, district wealth, and metropolitan status?

Access to Community Activities for Young Children with Disabilities

- Parents of children participating in PEELS were asked if their child participated in extracurricular activities outside of school, such as dance lessons, organized athletic activities, organized clubs or recreational programs, music lessons, drama classes, art or craft classes or lessons, or performing arts programs. According to their parent's report, children's

level of participation in the activities ranged from 50 percent for organized athletic activities to 3 percent for drama classes.

- Parents were asked if their child participated at least once a month in play groups, story hours, Sunday school or church child care, lessons, athletic teams, children's organizations, or other monthly group activities. Fifty-seven percent of parents reported that their children had participated in a monthly children's group activity. The most common group activity in which the children participated was Sunday school or church child care (80%).
- Parents of PEELS children were asked whether they had taken their child various places in the past month. More than 90 percent of parents reported that their child went to restaurants (95%), grocery stores (95%), and shopping malls (94%) in the past month, and more than 50 percent of parents reported that their child went to places of worship (72%), parks (72%), movies (58%), or libraries (52%). The percentage of parents who reported taking their child to the park in the previous month varied significantly by disability. For example, fewer children (53%) with other health impairments had gone to the park with their family compared to children with autism (75%, t = -3.53, p = .001), a learning disability (75%, t = -2.39, p = .02), a speech or language impairment (75%, t = -3.42, p = .001), or a developmental delay (74%, t = -2.9, p = .005).

Access to Educational Activities for Young Children with Disabilities

- By spring of their kindergarten year, the mean age of PEELS children was 73.4 months.
- For those PEELS children still receiving special education services in kindergarten (78 percent of the original PEELS sample), 73 percent of teachers indicated that the regular education classroom was considered the main education setting during the kindergarten year.
- Children's main education setting differed significantly by district factors, including district size, metropolitan status, and district wealth. A larger proportion of children in very large districts were in the regular education classroom as their main setting (91%) compared to

children in large districts (72%, t = 3.76, p < .001), medium districts (69%, t = 5.59, p < .001), or small districts (62%, t = 5.16, p < .001). More children in rural districts (86%) were in the regular education classroom as their main setting compared to children in suburban districts (73%, t = 2.57, p = .012) or urban districts (64%, t = 4.93, p < .001). Children in very low-wealth districts (59%) were less likely to have regular education classrooms as their main education setting compared to children in high-wealth districts (72%, t = -2.78, p = .007), medium-wealth districts (81%, t = -3.24, p = .002), or low-wealth districts (76%, t = -3.52, p = .001).

- Kindergarteners in PEELS still receiving special education services received an average of 17.1 hours per week of education in regular education classrooms and 7.1 hours per week in special education classrooms. The mean number of hours per week in a regular education classroom setting differed significantly by district size (F = 3.438, p = .022) and metropolitan status (F = 10.289, p < .001). Children in very large districts (M = 19.8) spent significantly more hours per week in the regular education classroom than children in medium districts (M = 14.8) or children in small districts (M = 14.5). Children in large districts (M = 18.2) also received significantly more hours per week in the regular education classroom than children in small districts (M = 14.5). In addition, children living in rural areas spent more hours in regular education classrooms (M = 22.0) than children living in urban areas (M = 15.7) or children living in suburban areas (M = 15.9).
- Sixty-nine percent of all PEELS parents, regardless of whether their children were still receiving special education services in kindergarten, reported that their child attended full-day kindergarten programs, and 31 percent of parents reported that their child attended half-day kindergarten programs. Among PEELS children, the type of program attended varied by metropolitan status and district wealth; children in suburban areas were less likely to attend a full-day program (57%), compared to children in urban areas (80%, t = -3.54, p = .001) or children in rural areas (83%, t = 3.23, p = .002). Children in high-wealth districts were less

likely to attend full-day kindergarten programs (44%) compared to children from medium-wealth (79%, $t = 3.59$, $p = .001$), children from low-wealth (84%, $t = 3.99$, $p < .001$), or children from very low-wealth (77%, $t = 3.69$, $p < .001$) districts.

- Among PEELS kindergarteners still receiving special education services, 44 percent of teachers reported that there were no modifications to the child's curriculum materials; 29 percent of teachers reported making some modifications; and 27 percent of teachers reported making either substantial modifications or using specialized curriculum materials. The most common modifications or accommodations provided to kindergarteners receiving special education services were additional time to complete assignments (39%), slower paced instruction or modified instruction (36%), and modified assignments (36%).
- Children in PEELS, regardless of whether they were still receiving special education services in kindergarten, spent most of their time in adult-directed whole-class activities and adult-directed small-group activities (39% and 23%, respectively).
- Children who were still receiving special education services in kindergarten and who were served mainly in regular education classrooms were in classrooms with an average of 3.3 special education students and 16.7 regular education students. The number of children with individualized education programs (IEPs) served in regular education classrooms differed significantly by district wealth ($F = 2.774$, $p = .049$). The number of children with IEPs served in regular education classrooms was significantly smaller for children from high-wealth districts ($M = 2.9$) than for children from medium-wealth districts ($M = 3.6$).

Chapter 1: Introduction

A series of federal laws have laid the groundwork for integrating individuals with disabilities into schools and communities; these laws include the Education of the Handicapped Act (P.L. 94-142, later amended and renamed the Individuals with Disabilities Education Act [IDEA]), the Rehabilitation Act of 1973 (P.L. 93-112), and the Americans with Disabilities Act (P.L. 101-336). Furthermore, the New Freedom Initiative of 2001 was designed to improve access to community life for individuals with disabilities through enhanced use of technology, high-quality education, and rigorous enforcement of existing laws. Community integration or community access can mean different things at different ages. For adults, it may include transportation, employment, and access to higher education and appropriate social supports. For children, it may include involvement in extracurricular activities, participation in family life, and access to an appropriate education from pre-kindergarten through high school.

To provide a snapshot of the extent to which young children with disabilities are accessing community and educational resources, this report uses data from the Pre-Elementary Education Longitudinal Study (PEELS) to describe their involvement in two specific domains: community activities, including extracurricular activities and family recreation, and kindergarten classroom experiences. While research has been conducted on children's access to and participation in community activities and educational experiences, those studies primarily focused on describing experiences for *all* children (Afterschool Alliance 2008; Fredericks and Eccles 2006; Guarino, Hamilton, Lockwood, and Rathbun 2006; Harrison and Narayan 2003; National Institute on Out-of-School Time 2003; Princiotta, Flanagan, and Germino-Hausken 2006; Rathbun, West, and Germino-Hausken 2004; Soukup, Wehmeyer, Bashinski, and Bovaird 2007; West, Denton, and Germino-Hausken 2000; West, Denton, and Reaney 2001) or for older children with disabilities (Blackorby et al. 2004; Wagner et al. 2002). This report focuses on the access to and participation in community activities and kindergarten classroom experiences for *young children with disabilities*. It describes their participation in extracurricular activities and their involvement in family recreation. It subsequently describes the kindergarten experiences of children

within the classroom: classroom practices, access to the general education curriculum, and access to typically developing peers. Information on the community activities and kindergarten experiences of young children with disabilities can help families, service providers, administrators, and policymakers by describing recent levels of access and involvement, both overall and by subgroup, and it may suggest avenues of further inquiry into barriers to access or alignment of needs with services.

The analyses presented in this report are designed to address four specific research questions related to children's access to community and educational activities:

- In what types of community activities are children with disabilities ages 5 through 7 engaged?
- How do specific attributes, such as gender, disability, and household income; and potential barriers, such as access to adequate transportation and safety of neighborhoods, relate to involvement in those activities?
- What are the kindergarten experiences of young children with disabilities in terms of access to the general curriculum, enrollment in classes with peers without disabilities, instructional strategies, and full-day/part-day programs?
- How do these kindergarten experiences vary by district size, district wealth, and metropolitan status?

This is one of several PEELS publications that have been prepared under contract with the National Center for Special Education Research (NCSER) in the U.S. Department of Education's Institute of Education Sciences (IES). Other PEELS publications include the following:

Technical Reports

- *Preschoolers with Disabilities, Characteristics, Services, and Results*;
- *Changes in the Characteristics, Services and Performance of Preschoolers with Disabilities from 2003-04 to 2004-05*; and
- *Early School Transitions and the Social Behavior of Children with Disabilities.*

PEELS Progress Notes (2-page briefs)

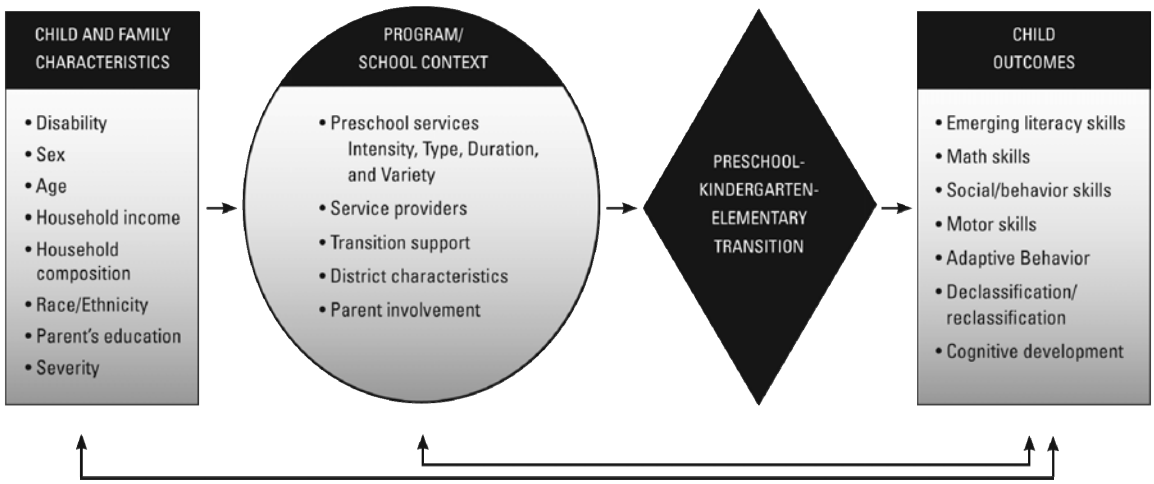
- Preschoolers with Disabilities: A Look at School Readiness Skills;
- Preschoolers with Disabilities: A Look at Transitions from Preschool to Kindergarten;
- Preschoolers with Disabilities: A Look at Parent Involvement;
- Preschoolers with Disabilities: A Look at Social Behavior;
- Preschoolers with Disabilities: Early Math Performance; and
- Preschoolers with Disabilities: Reclassification Across Disability Categories.

These publications are available through the project website www.peels.org.

PEELS Overall Conceptual Model

Figure 1 provides an overall model that has guided the PEELS analyses. While PEELS was a broad, descriptive, longitudinal study that followed a nationally representative sample of children with disabilities from 2003 through 2009, the analyses presented in this report are more narrowly focused than analyses presented in earlier technical reports or the model itself. This report provides descriptive analyses of access to and participation in community activities and kindergarten classroom experiences, two topics that were touched on superficially in earlier publications. While this report does not address child outcomes like those specified in the conceptual model, it does address access to community and educational activities. These activities reflect the integration of individuals with disabilities into society, and they may open avenues for experiences that could lead to children's attainment of a variety of academic, social, and functional skills.

FIGURE 1: OVERALL CONCEPTUAL MODEL FOR PEELS ANALYSIS



The report is organized in the following manner. The authors describe in chapter 2 the PEELS study design and methods used in this report. Chapter 3 presents information on access to community activities of young children with disabilities. Chapter 4 focuses on kindergarteners with disabilities and their access to classroom experiences. Seven appendices are also included. Appendix A contains a diagram of local education agency (LEA) sampling procedures. Appendix B provides detailed information on weighting procedures used in PEELS. Appendix C contains the results of a nonresponse bias study. Appendix D includes standard errors for data tables presented in chapters 3 and 4, and appendix E provides standard error tables for figures. Appendix F describes the analysis variables used throughout the report. Appendix G documents characteristics of the final augmented LEA sample. For access to PEELS data collection instruments and publications, please go to www.peels.org.

Chapter 2: Methods

PEELS was designed to describe young children with disabilities, their experiences, the services they receive; and their performance over time in preschool, kindergarten, and elementary school. This chapter provides basic information on the sample design as well as more specific information on data collection instruments, activities, and data analysis methods relevant to the results presented in this report.[1]

Sample Design

PEELS used a two-stage sample design to obtain a nationally representative sample of 3- through 5-year-olds receiving special education services. In the first stage, a national sample of LEAs was selected. In the second stage, a sample of preschoolers with disabilities was selected from lists of eligible children provided by the participating LEAs.[2]

Different samples are referred to throughout the chapter, so it may be helpful to define them clearly from the outset. The sample selected following the original sample design is called the main sample. This sample was selected by a two-stage design, LEAs at the first stage and children at the second stage. To address nonresponse bias at the LEA level, a nonresponse bias study sample was selected from the nonparticipating LEAs to examine potential differences between the respondents and nonrespondents.[3] The combined sample of the main and the nonresponse study sample is a three-phase sample, where the first phase is the same as the main sample, the second phase is a combined LEA sample comprising the main sample LEAs and the nonresponse study sample LEAs, and the third phase is the sample of children selected from the combined LEA sample. This combined sample was treated as one sample, as if it had been selected with the original sample design, and is called the amalgamated

[1] For a more comprehensive description of PEELS methods, see Markowitz et al. (2006).

[2] In this report, the terms LEA and district are used interchangeably.

[3] Details about the nonresponse study can be found in appendix C.

sample. In Wave 2[4], a supplemental sample was selected from a state that was not covered in Wave 1. The amalgamated sample was augmented by adding the supplemental sample and is named the augmented sample. The results presented in this report are based on this augmented sample.

Main LEA Sample

In 2001, 2,752 LEAs were selected from the universe of LEAs serving preschoolers with disabilities, although the target sample size was 210. The universe of LEAs was stratified by four Census regions, four categories of estimated preschool special education enrollment size, and four wealth classes defined on the basis of district poverty level. This resulted in 64 cross-classified stratum cells. The sample of 2,752 LEAs was then divided into many subsamples. Releasing these subsamples one by one, the contractor recruited from the minimum number of subsamples possible to secure participation from 210 LEAs, the target number needed to generate a sufficient number of children in the second stage sample. Ultimately, 709 LEAs were contacted during recruitment, and 245 LEAs agreed to participate. However, a state that contains a considerable portion of the population for its region banned its districts from participating in the study, so they were not even contacted for recruitment. This created a serious under-coverage problem for the study population. This undercoverage was resolved in Wave 2 by randomly selecting a supplemental sample for the state. More details on the supplemental sample are given later in this chapter.

The design contractor contacted directors of special education and superintendents to secure districts' participation. A participating LEA was required to return a signed agreement affirming that the district would complete the following tasks:

- Provide one or more names and contact information for a potential site coordinator for the study;
- Allow the site coordinator and other cooperating district staff to recruit families into the study;

[4] Data were collected in school years 2003-2004, 2004-2005, 2005-2006, 2006-2007 and 2008-2009, which are referred to as Wave 1, Wave 2, Wave 3, Wave 4 and Wave 5, respectively.

- Forward contact information from parents who consented to participate in the study;
- Allow selected teachers, other service providers, and principals of sampled children to complete a mail questionnaire; and
- Allow selected children to participate in a direct assessment, with parental consent.

The design contractor focused recruitment efforts on very large LEAs because a large proportion of the child sample would be selected from these districts, and smaller LEAs could be replaced. Because the initial recruitment occurred in 2001, and data collection did not begin until 2003, researchers contacted the participating LEAs to confirm their willingness to participate.

In spring 2003, a total of 46 of the 245 LEAs recruited in 2001 dropped out of the study. The 199 remaining LEAs confirmed their participation and began to supply lists of preschool children receiving special education services.

Nonparticipation of a large state in the first phase of LEA recruitment in 2001 created serious undercoverage[5] for the region in which the state is located. (This nonparticipating state is referred to as state X.) Moreover, a large district in the same geographic region as state X was 1 of the 46 that dropped out in 2003.[6] By spring 2003, the state education agency (SEA) in state X lifted the ban and allowed its districts to participate in the study. Researchers tried to replace the large district in the region that dropped out by sampling four large LEAs from state X in the hope of reducing the undercoverage.[7] Only one of those four LEAs agreed to participate in PEELS, and recruitment of children from the district was very low; therefore, the undercoverage was largely unresolved.

To address this undercoverage so the final sample would be nationally representative, a supplemental sample of LEAs, with stratification by size, was randomly selected from state X in Wave 2

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[5] Undercoverage by a sample indicates that a certain portion of the survey population has no chance of being selected. Because of a state ban, the LEAs in one state had no chance of being selected into the PEELS sample, so it created an undercoverage problem.

[6] This dropout worsened the response rate among the selected LEAs in the region but did not aggravate the undercoverage problem.

[7] Although having some sample from the nonparticipating state would reduce the undercoverage problem, it would not eliminate the problem because there were still many LEAs that did not have any chance of being selected.

(2004-05). It was too late to do this in Wave 1. The Wave 1 sample, despite the undercoverage problem, was weighted as if state X had been covered by the sample, in the hope of obtaining reasonable national estimates, despite the risk of possible bias. In this way, researchers produced preliminary Wave 1 data.

In Wave 2, the supplemental sample provided data for state X, and researchers used imputation to create missing Wave 1 data for the supplemental sample based on Wave 2 data. All data (child assessment, teacher questionnaire, and parent/guardian interview) except principal and program director questionnaire data were imputed for the supplemental sample in Wave 1. Six percent of the augmented sample data for Wave 1 are imputed data, including assessment data. The Wave 1 sample was then reweighted. Therefore, the Wave 1 (2003-04) point estimates and standard errors presented in this report will differ from the preliminary Wave 1 results presented in a previous publication (Markowitz et al. 2006).

In Wave 1, among the contacted 709 LEAs, only 199 LEAs participated in the study. Poor response raised a concern about nonresponse bias. To address it, the U.S. Department of Education funded a comprehensive nonresponse study. In Wave 1, a random sample of 32 LEAs was selected from among the 464 nonparticipating LEAs originally contacted but unsuccessfully recruited. Note that the state ban was still in effect at the time of selection of the nonresponse bias sample, so it was not feasible to include that state in the nonresponse bias study. Because the LEA sample for the nonresponse bias study was small compared to the main LEA sample, it was not possible to use the original LEA sample design (i.e., stratified by geographic region, size category, wealth class)[8], so only size was used to stratify the 464 nonparticipating LEAs to select the random sample of 32.[9] Twenty-five of those LEAs (78%) initially agreed to participate in the study. This nonresponse study sample was roughly 10 percent of the

[8] If the original sample design was used for the nonresponse bias study, at least half of the 64 possible stratum cells would have been allocated a sample size of zero. This would have created a serious coverage problem because the strata for which no sample was allocated would have had no chance of selection. Using the same stratification is not an issue of representativeness (i.e., coverage) but of efficiency. The notion of sample representativeness is used here to mean that the sample is designed to give every unit in the survey population (represented by the sampling frame) a non-zero probability of selection.

[9] This sample (10 percent of the main LEA sample (245 districts) and with full participation in all aspects of data collection) was considered quite comprehensive to study bias due to nonresponse. To maintain the 64 initial sampling strata, the nonresponse sample would have required resources beyond those available or required for the sample's purposes.

size of the main LEA sample. Because the results of the nonresponse bias study showed no systematic differences between the respondents and nonrespondents for the key variables we studied (see appendix C for details), the two samples (main and nonresponse bias study) were amalgamated into a single sample as if they had been selected as one based on the original sample design. Nevertheless, this amalgamation could cause some unknown bias in estimates.

This amalgamated sample was then augmented by adding the supplemental sample; this report is based on this augmented sample. The Wave 1 data from the supplemental sample were included in all analyses in this report. The augmented sample, although not selected using the original sample design, is nationally representative because the supplemental sample eliminated the undercoverage issue, and weighting of this sample was done to produce nationally representative estimates.

A diagram[10] in appendix A depicts the sample selection processes for the main sample, which was stratified by size, region, and wealth class, and the nonresponse bias and supplemental samples, both of which were stratified by size only. The final result of the augmented LEA sample, which includes the nonresponse bias study and supplemental samples, is shown by stratum variables (of the main sample) in table 1.

[10] The diagram does not show the intermediary sample of 2,752 LEAs from which a random sample of 709 LEAs was used because the unused portion was simply a reserve sample, which was put back to the frame.

Table 1. Final augmented LEA sample size by three stratification variables

Size				
Total	Very Large	Large	Medium	Small
232	39	42	51	100
Region				
	Northeast	Southeast	Central	West/Southwest
232	66	56	63	47
District wealth				
	High	Medium	Low	Very Low
232	67	67	59	39

NOTES: The supplemental sample is included only in one region. Region was not used as a stratification factor for the nonresponse bias sample, but the counts include nonresponse bias sample LEAs that happened to fall in the respective regions.

Wealth class was not used as a stratification factor for either the nonresponse bias sample or the supplemental sample, but the counts include the sample LEAs that happened to fall in the respective classes.

Child Sample

In Wave 1, participating districts in the LEA sample submitted lists of eligible children, from which the sample of children was selected. The first was a historical list for which districts identified age-eligible children who had an IEP prior to March 1, 2003 (or an individualized family service plan [IFSP] for districts using IFSPs for children 3 through 5 years of age)—(see table 2 for age-eligibility). The second set of lists, called ongoing lists, were submitted monthly for 1 year for which districts identified newly eligible children in the district by listing children who received their first IEP in the given month. Districts identified children using numbers, rather than names, to maintain confidentiality. Children who transferred from another district with an IEP already in effect were not included on the ongoing lists because they were not newly eligible children.

In Wave 1, the lists of child identification numbers submitted by the districts were checked for ineligible or duplicate cases within and across lists. Errors were corrected through communication with district site coordinators. PEELS researchers began randomly selecting children from historical and ongoing lists late in the 2002-03 school year.[11] The districts continued to send lists of children once a

[11] Sampling rates were based on district-level enrollment counts for children 3 through 5 years of age with disabilities.

month as the children entered the special education system, and researchers continued to select additional children for the site coordinators to recruit. By the end of Wave 1 family recruitment in May 2004, researchers had selected a sample of 5,259 children.

There are three age cohorts in PEELS: Cohort A comprises 3-year-olds; Cohort B 4-year-olds, and Cohort C 5-year-olds, defined in table 2. Cohort A consists of children in the specified age range who were newly enrolled in the special education program during the recruitment period, and they were to be sampled as they enrolled. These children were on the "ongoing" lists. Cohort B consists of children in the eligible age range who were enrolled before the recruitment period ("historical") and children who were newly enrolled (i.e., ongoing). Cohort C also consists of historical and ongoing children. Thus, there were five combinations of age cohort and historical or ongoing status for each district. These combinations are called child sampling classes.

Table 2. Definition of PEELS age cohorts

Cohort	Age at entry into PEELS	Date of birth
A	3 years old	3/1/00 through 2/28/01
B	4 years old	3/1/99 through 2/29/00
C	5 years old	3/1/98 through 2/28/99

Historical list children were sampled using predetermined sampling rates based on the estimated list size and the target sample size, as explained below, when the participating districts provided their historical lists of 4- and 5-year-old children. Children on the ongoing lists were sampled as the districts periodically sent lists of 3-, 4-, and 5-year-olds. Each district had a predetermined sampling rate, which was typically used throughout the recruitment period. However, in some cases, the sampling rates were recalculated based on updated information on district enrollment size, if it was very different from the original estimate.

To determine the sampling rates for the five child sampling classes in the main sample, district-level sampling weights and district-level child counts, by cohort were used. The historical sampling rates

were generally lower than the ongoing sampling rates within a cohort. Both rates were determined to achieve the target sample sizes for the five child sampling classes, while keeping the weights within the child sampling classes as equal as possible. District child counts were obtained from SEA personnel or websites. Most of the child counts were from December 2003; some were older. Similarly, for the nonresponse bias study sample, the cohort sampling rates were determined in order to reach the target sample sizes (10% of the main sample) and to obtain homogeneous child weights within the child sampling classes as much as possible.

One constraint to this procedure was a cap of 80 children for each district. This cap was set so that no individual districts would be overburdened. Although the cap was considered in determining the sampling rates, researchers nonetheless surpassed the cap in a few instances during ongoing sample selection because some large districts submitted lists that included more children than we predicted. During ongoing sample selection in each month, PEELS staff monitored the situation. When the cap was exceeded for a district by a margin of more than 5, the ongoing sample selected for the district that month was reselected so that the overall sample size did not exceed 80, and no further ongoing sample selection was performed for the district.[12]

For the supplemental sample selected in Wave 2, a similar sampling procedure was used to select a child sample, with important exceptions. The age cohort was determined based on the children's age in Wave 1 (see table 2). Furthermore, there was no need to select children on an on-going basis because, in Wave 2, every child was from a historical list. However, to mirror the child sampling process used in Wave 1, the ongoing and historical designations were assigned based on the time of the children's special education enrollment in 2003-04. An additional sample of 542 children was added to the child sample of 5,259 selected in Wave 1, totaling 5,801 sampled children, of whom 3,104 were recruited and took part in the study (2,906 beginning in Wave 1, and 198 beginning in Wave 2).

[12] The overall district sample size was allowed to exceed the cap of 80 by up to 5.

Family Recruitment

Once children were sampled from the historical or ongoing lists, Recruitment Packets were sent to the district site coordinators. Site coordinators were district employees responsible for determining if sampled children were eligible and, if so, inviting their parents or guardians to participate in PEELS. It was necessary to use district employees for this purpose because of the confidentiality of the data on sampled children (i.e., that they were children with disabilities receiving special education services). In addition, district employees had access to information about the names and addresses of parent/guardians and service providers that would not have been available to non-employees. While some family recruitment began in summer 2003, it began in earnest in fall 2003. Recruitment for the supplemental sample occurred in winter-spring 2005. Each recruitment packet included Enrollment Forms (Part 1 and Part 2), a PEELS brochure, a cover letter explaining the study, a PEELS magnet, and a postage-paid return envelope.

Each recruitment packet was arranged according to the unique PEELS identification number assigned to each sampled child. Site coordinators from each district were given a recruitment log, which listed each child's PEELS identification number along with the child's district identification number (submitted on the historical/ongoing lists). Site coordinators were asked to match the identification numbers on the log with the proper child, apply eligibility standards, then invite the eligible families to participate in PEELS. Site coordinators were also encouraged to document the recruitment process using the log.

Part 1 of the PEELS Enrollment Form was eight questions long and was typically filled out by the district's site coordinator before inviting the family to participate in the study. The following five questions on the form asked site coordinators for non-identifying information for each child sampled.

1. Is the child of Hispanic origin?
2. What is the child's race?
3. Is the child in foster care?
4. Does the family receive any kind of public assistance?

5. What is the primary reason for child's eligibility in preschool special education?

PEELS researchers collected these data to test for differences between families that agreed and those that declined to participate in PEELS. The remaining three questions on the Enrollment Form were used to determine the eligibility of each family selected. PEELS had three eligibility criteria:

1. There was an English- or Spanish-speaking adult or an adult who used signed communication in the household who could respond to the telephone interview or alternatively respond using a telephone relay service or interpreter for the hearing impaired.
2. This was the first child in the family sampled for PEELS.
3. The sampled child's family resided in the participating school district at the time of enrollment in PEELS.

If all three eligibility criteria were met, families were given recruitment materials, including a letter explaining the study, the PEELS brochure, and a magnet. The site coordinator informed the family that PEELS is a longitudinal study, that participation is voluntary, and that they could drop out at any time. Site coordinators stressed the study's commitment to confidentiality, ensuring the family that their identity would be protected and that only aggregate data would be reported.

Families that agreed to participate were asked to fill out the PEELS Enrollment Form, Part 2, which asked for identifying information such as names, contact information, the type of services the child received, and the name of the child's teacher or service provider. Once they submitted a signed consent form agreeing to allow PEELS staff to conduct the parent telephone interview, the child assessment, and the teacher/service provider questionnaire, parents received $15. Site coordinators were paid $30 for each family they recruited.

As site coordinators enrolled families to participate in PEELS, their cases were released for the various data collection activities, including the parent telephone interview, the child assessment, and the teacher and program administrator questionnaires.

PEELS researchers received completed enrollment forms for 4,365 children, including the supplemental sample. Based on those enrollment forms, 3,902 or 89.4 percent of families were found

eligible. Of those found ineligible, 74 percent no longer lived in the district from which they were sampled, 12 percent did not have an English- or Spanish-speaking adult in the home, and 12 percent had another child sampled for PEELS. Of the eligible families, 79.5 percent agreed to participate. In all, 3,104 families took part in PEELS, which is lower than the 3,550 anticipated, potentially leading to nonresponse bias. However, the nonresponse bias study revealed no systematic differences between respondents and nonrespondents (see appendix C for details). Also, this set of final recruited families was properly weighted to produce national estimates. Details of the weighting procedure are given in appendix B.

Nine districts out of 232 that agreed to participate in the study did not recruit any families with eligible children or had no eligible children, and so the final tally of the participating districts in the child-based surveys is 223[13]. See appendix G for tables that show participating LEA sample size by size of LEA, region, and wealth. This final sample result is tabulated by stratification variables and cohort in tables 3 through 5. Tables 6 and 7 provide final child samples by disability and gender, respectively.

Table 3. The final study sample of children, by LEA size

	Total number of children	Very Large	Large	Medium	Small
Total	3,104	736	851	729	788
Cohort A	985	225	256	238	266
Cohort B	1,124	300	323	253	248
Cohort C	995	211	272	238	274

Table 4. The final study sample of children, by LEA region

	Total number of children	Northeast	Southeast	Central	West/ Southwest
Total	3,104	756	727	658	963
Cohort A	985	287	177	209	312
Cohort B	1,124	261	287	225	351
Cohort C	995	208	263	224	300

[13] Child-based surveys are the parent interview, child assessment, and teacher questionnaires. Some of those districts, nevertheless, participated in the LEA questionnaire.

Table 5. The final study sample of children, by LEA wealth

	Total number of children	High	Medium	Low	Very Low
Total	3,104	848	856	796	604
Cohort A	985	292	295	222	176
Cohort B	1,124	301	305	273	245
Cohort C	995	255	256	301	183

Table 6. The final study sample of children, by disability

	Total number of children	AU	DD	ED	LD	MR	OI	OHI	SLI	LI	No current IEP
Total	3,104	188	806	44	73	86	43	56	1,562	150	96
Cohort A	985	72	328	13	9	23	15	20	443	49	13
Cohort B	1,124	75	280	12	22	30	18	16	590	52	29
Cohort C	995	41	198	19	42	33	10	20	529	49	54

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (including deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

Table 7. The final study sample of children, by gender

	Total number of children	Male	Female
Total	3,104	2,189	915
Cohort A	985	692	293
Cohort B	1,124	802	322
Cohort C	995	695	300

Data Collection Instruments and Activities

This section describes the data collection instruments and procedures used to obtain the information analyzed in this report. Table 8 provides response rates for each of the data collection instruments.[14]

[14] Note that additional instruments were used in PEELS. Because the data collected through those instruments were not used for the analyses presented in this report, they have been excluded here. For more complete information on all PEELS data collection instruments, see Markowitz et al. 2006.

Table 8. Total number of respondents for each PEELS instrument

	Wave 1		Wave 2		Wave 3		Wave 4	
Instrument type	Frequency	Response rate	Frequency	Response rate	Frequency	Response rate	Frequency	Response rate
Parent interview	2,802	96%	2,893	93%	2,719	88%	2,488	80%
LEA questionnaire	207	84%	--	--	--	--	--	--
SEA questionnaire	51	100%	--	--	--	--	--	--
Principal/program director questionnaire[a]	852	72%	665	77%	406	56%	--	--
Teacher mail questionnaire	2,287	79%	2,591	84%	2,514	81%	2,502	81%
Early childhood teacher questionnaire	2,018	79%	1,320	86%	346	82%	--	--
Kindergarten teacher questionnaire	269	73%	957	79%	992	81%	419	79%
Elementary teacher questionnaire	--	--	314	86%	1,176	81%	2,083	81%
Child assessment	2,794	96%	2,932	94%	2,891	93%	2,632	85%
English/Spanish direct assessment	2,463	97%	2,704	96%	2,726	93%	2,507	85%
Alternate assessment only	331	93%	228	79%	165	93%	125	84%

-- Not available

[a]QED data were used to impute missing items for the principal/program director questionnaires, bringing the percentage of children with some school context information in Waves 1-3 to 94, 95, and 94 percent, respectively.

Parent/Guardian Interview

A parent/guardian of each child in the sample was asked to complete four computer-assisted telephone interviews (CATI), one in each of Waves 1 through 4. The interviews covered the participating child's health and disability, behavior, school programs and services, special education and related services, child care, and out-of-school activities. Respondents were also asked a series of questions about their household, its resources, and family background.

Parent interviews for Wave 1 were conducted between November 2003 and June 2004. In Waves 2, 3, and 4 interviews were conducted between January and June 2005, 2006, and 2007, respectively. The interviews in Waves 1, 2, and 3 averaged about 60 minutes. The Wave 4 interview was considerably shorter, roughly 15 minutes. The interviews were conducted in English or Spanish, based upon respondent preference. In Wave 1, interviews were conducted with 2,802 families, for a 96 percent response rate out of the recruited families.[15] In Wave 2, interviews were conducted with 2,893 families, for a 93 percent response rate. In Wave 3, a total of 2,719 families completed interviews (88%). In Wave 4, a total of 2,488 families completed interviews (80%). Because 198 families in the supplemental sample were added in Wave 2 to the families recruited in Wave 1, the number of families interviewed in Wave 2, 3, and 4 may be higher than in Wave 1, while the percentage interviewed may have decreased or remained unchanged.

Mail Questionnaires

Two versions of the teacher questionnaire were used in Wave 1, the Early Childhood Teacher Questionnaire (for children not yet in kindergarten) and the Kindergarten Teacher Questionnaire. An Elementary Teacher Questionnaire for children in grades 1 and higher was added in Wave 2. All three teacher questionnaires asked about the specific child named on the inside cover and the child's experiences in the class or program. Questionnaire items addressed classroom staffing and materials, interaction with peers without disabilities, teachers' philosophies of early childhood education, and

[15] The response rate for each instrument of data collection (parent telephone interview and teacher questionnaire) is calculated out of the recruited families in its specific wave.

children's transitions in and out of their current programs. A pull-out section of the teacher questionnaires addressed the children's special education programs and related services. The questionnaires were completed by either the classroom teacher or the special education service provider, as appropriate. In Wave 1, a total of 2,018 Early Childhood Teacher Questionnaires and 269 Kindergarten Teacher Questionnaires were completed for response rates of 79 percent and 73 percent, respectively. In Wave 2, a total of 1,320 Early Childhood Teacher Questionnaires, 957 Kindergarten Teacher Questionnaires, and 314 Elementary Teacher Questionnaires were completed, for response rates of 86 percent, 79 percent, and 86 percent, respectively. In Wave 3, a total of 346 Early Childhood Teacher Questionnaires, 992 Kindergarten Teacher Questionnaires, and 1,176 Elementary Teacher Questionnaires were completed, for response rates of 82 percent, 81 percent, and 81 percent, respectively. In Wave 4, a total of 419 Kindergarten Teacher Questionnaires and 2,083 Elementary Teacher Questionnaires were completed, for response rates of 79 percent and 81 percent, respectively.

Overall, in Waves 1-4, researchers received questionnaires from 79, 84, 81, and 81 percent of children's teachers (see table 8).

Data Preparation and Analysis

This section describes methods used to impute for item and unit nonresponse, develop sampling weights, estimate variance, create independent variables, test for statistical significance, and suppress scarcely populated cells.

Imputation

In data preparation, imputation was conducted for selected items on the teacher questionnaire and parent interview data. In general, the item missing rate was fairly low. For the Wave 1 parent interview, the item missing rates for the augmented sample were less than 10 percent for 702 variables and 10 to 14 percent for 34 variables; three variables had rates between 15 and 17 percent. For Wave 2, there were no missing values for 235 variables and a missing rate of less than 9 percent for 265 variables; only two variables had higher rates, 15 percent for one and 24 percent for another. Of the 498 variables used for

Wave 3, there were no missing values for 314 parent interview items and missing rates of 1 to 4 percent for the other 181 variables. Of the 168 variables used for Wave 4, there were no missing values for 133 parent interview items and a missing rate of less than 3 percent for 32 variables; only three variables had higher rates, 4 percent for two variables and 5 percent for the third variable.

For teacher questionnaire data in Wave 1, item missing rates were under 10 percent for 94 percent of variables, 10 to 14 percent for 4 percent of variables, and 15 to 22 percent for 2 percent of variables. In Waves 2 and 3, less than 5 percent of cases were missing for 99 percent of teacher questionnaire variables, and 5 to 9 percent of cases were missing for 1 percent of variables. In Wave 4, less than 5 percent of cases were missing for 92 percent of teacher questionnaire variables, 5 to 9 percent of cases were missing for 7 percent of variables and 10 to 14 percent of cases were missing for less than one percent of variables.

Imputed values may have two undesirable features. The first is that they may cause bias in an estimate calculated from the post-imputed data. The second is that the variance of such estimates may increase. If the imputed values are treated as real values and an ordinary variance estimator is used, this increased variance is not reflected, and the variance is underestimated, which can lead to an erroneous inference. These potential problems become more serious if the percentage of imputed cases in the analysis sample is high (for example, over 20%). However, the percentage of imputation for the supplemental sample was between 6.6 and 8.7 percent of the augmented sample, depending on the instrument. Therefore, the risk of imputation-related bias was judged to be minimal. The variance inflation due to imputation was also contained because the imputation rate was below 10 percent. Imputation for the supplemental sample increased the amount of data usable for analysis, offsetting the potential risk of bias.

Researchers used different methods of imputation depending on the nature of missing and available information for imputation. The methods included hot-deck imputation, regression, external data source, and deterministic or derivation method, based on the internal consistency principle of inter-related variables. In some cases, a postulated value was imputed after analyzing missing patterns. Whenever a

value of a variable was imputed, an imputation flag for the variable was created in the data set to record the change.

Weighting

The data presented in the report have been weighted to generate national estimates. Different weights have been used depending on the sources of data. These weights adjust the child base weights given to the 3,104 recruited families to account for nonresponse on specific data collections in specific waves or groups of waves. Appendix B includes complete information on the weights.

Variance Estimation

It is extremely difficult to obtain an unbiased variance estimator for a complex sample like the one used in PEELS. The jackknife variance estimator was used; it takes account of clustering effects and other weighting adjustments for nonresponse and post-stratification. The variance estimator is usually slightly conservative and tends to lead to a slightly smaller chance of type I error than indicated by the significance level of the test. PEELS researchers performed post-stratification whenever possible to enhance the precision of the survey estimates. All standard errors and significance tests were conducted using WesVar Version 4.2 (Westat 2002) to account for the complex probability sampling and weighting used in PEELS.

Independent Variables

The disability categories used in this collection are those specified in IDEA. Children's primary disability category was obtained from their teachers or service providers; however, if service provider data were missing, disability information was obtained from the children's parents. Because of the small sample sizes for some disability categories, a "low incidence" category was created that included deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination).

Many of the descriptive statistics in the chapter on access to community activities (chapter 3) are reported by household income. Three income levels were used: $20,000 or less, $20,000 through $40,000, and more than $40,000. The $20,000 level was set because the Federal poverty level for a family of four is roughly $20,000 (U.S. Census Bureau 2004), then $20,000 increments were used for each category up to $40,000.[16]

In the chapter on access to educational activities of young children during their kindergarten year (chapter 4), three district factors were used as independent variables: district wealth, metropolitan status, and district size. Two of these district-level characteristics—district wealth and metropolitan status—were taken from the Quality Education Data (QED) district file as part of the PEELS sampling stratification and have been reported in previous PEELS reports. District wealth was defined as a percentage of the district's children falling below the federal government poverty guidelines, where *high wealth* was 0-12 percent, *medium wealth* was 13-34 percent, *low wealth* was 35-40 percent, and *very low wealth* was more than 40 percent. Metropolitan status was defined by the designations of the U.S. Department of Education's National Center for Education Statistics (NCES), as applied by QED, and was classified as *urban,* defined as a large or mid-sized central city; *suburban,* defined as urban fringe of a large or mid-sized city, large or small town; or *rural,* defined as an area with a population of less than 2,500.

District size is also used as an independent variable. It was obtained through the LEA Policies and Practices Questionnaire and was based on report of total district enrollment. Using cutoffs from the National Center for Education Statistics (NCES) Common Core of Data, the districts were categorized as *small* if they had 300-2,500 students, *medium* if they had 2,501-10,000 students, *large* if they had 10,001-25,000 students, and *very large* if they had more than 25,000 students.

Readers should be aware that demographic factors (e.g., gender, race/ethnicity, and household income) are correlated among youth with disabilities. The interactions and relationships among subgroups relative to the other variables included in this report have not been explored.

[16] Note the PEELS household income variable was not adjusted for family size.

Significance Testing and Cell Suppression

Chi-square tests and ANOVAs were performed to examine statistically significant differences across subgroups.[17] All individual tests were performed using a 5 percent significance level. If the chi-square was significant, a *t*-test for dependent samples was conducted to examine differences between groups. Similarly, if an ANOVA was significant, a Wald *F* test was conducted to examine differences between groups.

Sometimes, related results were discussed as a group or family of tests. To ensure that significant differences in data reflect actual differences and not mere chance, error rates were controlled when making multiple simultaneous comparisons. The more comparisons that are made (e.g., comparing the experiences of students attending schools in urban, suburban, and rural locations) and the larger the sample size, the higher the probability of finding significant differences by chance. The Benjamini-Hochberg procedure (Benjamini and Hochberg 1995), known to be less conservative than Bonferroni correction, was used in this report for multiple testing situations to control the expected proportion of falsely rejected hypotheses relative to the number of comparisons that are conducted. This procedure controls the false discovery rate (FDR) at a set level instead of the family-wise error rate. False discovery rate is the expected error rate of making false positives among all positive claims. If this is set to be small, say 0.05, the Benjamini-Hochberg procedure controls FDR at 0.05.

In all data displays, if the number of cases in a cell dropped below three, data were suppressed, and a footnote was added to indicate that "Reporting standards were not met." This convention was used to maintain data confidentiality.

[17] If a continuous variable, such as household income, had a non-normal distribution, a categorical variable was created and analyzed using chi-square tests. In the regression context, categorizing a continuous variable into three groups captures the vast majority of its relationship with other variables (see Gelman and Park, 2008).

Chapter 3: Access to Community Activities for Young Children with Disabilities

In this chapter, we explore the access to and participation in community activities for *young* children with disabilities, including extracurricular activities and family recreation, and the amount of variation that exists across subgroups of children with disabilities. Such information can help families, service providers, administrators, and policymakers by providing a portrait of recent levels of participation, both overall and by subgroup, and it may suggest avenues of further inquiry into barriers to access or alignment of services with needs.

The 2000 Survey of Income and Program Participation (SIPP), which looked at children ages 6 to 11 in the general population, found that young children, in general, are active participants in community activities. Ninety-five percent of children under 12 years old were taken on outings with a family member in the past month, 31 percent participated in sports activities, and 34 percent participated in clubs, including Scouts, a religious group, a Girls or Boys Club, or 4-H activities (Lugaila 2003). Studies have suggested an association between children's participation in extracurricular activities and a number of positive outcomes, including better academic achievement and school attendance as well as improved social skills and behaviors (Afterschool Alliance 2008; Fredericks and Eccles 2006; Harrison and Narayan 2003; National Institute on Out-of-School Time 2003) and overall quality of life (Mactavish and Schleien 2004; from Hawks 1991; Kelly 1999; Orthner and Mancini 1991; and Shaw 1992 as cited in Mactavish and Schleien 2004).

Research also suggests that children's participation in extracurricular activities and the types of activities children participate in can vary according to gender. (Dearing et al. 2009; King et al. 2003; Law, Petrenchik, King, and Hurley 2007; Lugaila 2003; White and Gager 2007; Wimer et al. 2006). White and Gager's (2007) study of general population youths' involvement in extracurricular activities found that, overall, females were less likely to engage in extracurricular activities than males. Using data from the Panel Study of Income Dynamics – Child Development Supplement, the National Survey of America's

Families, and the SIPP, researchers also found that more females than males in the general population participated in lessons outside of school, like music and dance, and in clubs, like religious groups, but that males participated more frequently than females in sports and recreation programs (Lugaila 2003; Wimer et al. 2006).

Several sources in the literature have also noted variation in participation in extracurricular activities and family recreation based on household income. Children from higher income families, compared to children from lower income families, may be more likely to participate in extracurricular activities; their families may be better able to afford the costs associated with participation, such as fees, materials, and uniforms (Dearing et al. 2009; King et al. 2003; Law et al. 2007; White and Gager 2007; Wimer et al. 2006). Also, less wealthy neighborhoods may contain fewer high-quality activity resources for children than wealthier neighborhoods do (Dearing 2009; Leventhal and Brooks-Gunn 2000; McLaughlin, Irby, and Langman 1994), and these neighborhoods may be less likely to have transportation options that facilitate access to these activities (Dearing et al. 2009). Furthermore, families living in less wealthy communities may live in dangerous neighborhoods, and they may choose not to let their children participate in community activities, in hopes of reducing their exposure to crime and other negative experiences (from Furstenberg et al. 1999; Jarrett and Jefferson 2003; Shann 2001 as cited in Dearing 2009).[18]

While there is some literature on *all* children's participation in community activities and on the ways in which participation varies by characteristics, such as gender and household income (e.g., Dearing et al. 2009; King et al. 2003; Law et al. 2007; White and Gager 2007; Wimer et al. 2006), relatively less is known about the participation of children with disabilities, particularly young children with disabilities, in community activities and the amount of variation that exists across subgroups of children with disabilities. Research suggests that children with disabilities are at risk for lower levels of participation in social and physical activities than their peers without disabilities (Brown & Gordon 1987; King et al.

[18] These findings are presented to provide a broader picture of factors associated with community activity participation. However, findings from research on youth in the general population cannot be directly compared to PEELS findings due to differences in the study designs.

2003) and that they tend to participate in a narrower variety of activities and in quieter activities that involve less social interaction (King et al. 2003; Margalit 1981 and 1984 as cited in Brown & Gordon 1987). Mactavish and Schleien (2000, 2004) have suggested that a child's disability, the family's ease of participation, and the extent to which modifications to activities are required may be associated with variation in participation. King et al. (2003) also noted family financial restrictions can be "an important determinant of children's participation" (page 76). Families of children with disabilities may bear additional costs associated with caring for their child, which could make supporting participation in community activities more difficult.

This chapter addresses the following two research questions:

- In what types of community activities are children with disabilities ages 5 through 7 engaged?
- How do specific attributes, such as gender, disability, and household income; and potential barriers, such as access to adequate transportation and safety of neighborhoods, relate to involvement in those activities?

This chapter begins by describing children's participation in extracurricular activities, such as athletics, clubs, or art lessons. The second section of this chapter focuses on children's participation in family recreation activities.

In this chapter, all comparative statements made have been tested for statistical significance using chi-square tests, unless otherwise noted. If the chi-square was significant, a *t*-test for dependent samples was conducted to examine differences between groups. Differences are discussed in this chapter only if they were found to be statistically significant at the $p < .05$ level. When related results are discussed as a group or family of tests, researchers controlled the family-wise error rate to avoid making false positive claims using the Benjamini-Hochberg procedure.

Children's Participation in Extracurricular Activities

In order to further explore patterns of participation in extracurricular activities for children with disabilities and how participation varies by the children's gender, disability, and household income, we analyzed data collected as part of the PEELS parent interview. Readers should be aware that among youth with disabilities these demographic factors are correlated, and those correlations have not been addressed in this report.

In PEELS, parents were asked if their child had ever participated in the following school- or non-school-sponsored extracurricular activities: dance lessons; organized athletic activities, like gymnastics, soccer, baseball, or basketball; organized clubs or recreational programs, like Scouts; music lessons, such as piano, instrumental music, or singing lessons; drama classes; art or craft classes or lessons, such as painting, drawing, or sculpting; and performing arts programs, such as children's choirs, dance programs, or theater performances. According to their parents' reports, children's level of participation in the activities ranged from 50 percent (*S.E.* = 2.1) for organized athletic activities to 3 percent (*S.E.* = 0.5) for drama classes (see table 9).

Tables 9 through 11 present the percentage of parents who reported their children participated at some point in time in various extracurricular activities by gender, disability, and household income. Table 12 presents the percentage of parents who reported their children's participation in various extracurricular group activities on at least a monthly basis.

Based on data from the parents' reports, children's participation in dance, clubs, or recreational programs, art classes, and performing arts programs varied significantly by child's gender (see table 9). Girls were more likely than boys to participate in these activities; for example, 37 percent (*S.E.* = 3.0) of girls participated in dance lessons compared to 5 percent (*S.E.* = 0.7) of boys ($t = 10.21$, $p < .001$). There were no statistically significant differences in the percentages of girls and boys participating in athletic activities, music lessons, or drama classes.

Table 9. Percentage of young children who received preschool special education services whose parents reported that their children participated in various organized activities outside of school, by gender: School year 2005-06

	Total	Male	Female
Organized athletic activities	49.9	50.2	49.3
Organized clubs or recreational programs*	19.3	16.2	26.6
Art or craft classes or lessons*	17.2	15.9	20.2
Dance lessons*	14.1	4.5	36.8
Performing arts programs (children's choirs, theater performances)*	13.9	9.6	24.1
Music lessons	10.0	8.9	12.8
Drama classes	2.9	2.8	3.1

*The result of the chi-square analysis was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Based on the PEELS parent interview data, participation in organized athletic activities, organized clubs, or recreational programs and performing arts programs also varied significantly by child's disability (see table 10). For example, children identified as having a speech or language impairment (55%, *S.E.* = 2.7) were more likely to have participated in organized athletic activities than children with an other health impairment (38%, *S.E.* = 7.7) ($t = 2.51$, $p = .015$), autism (37%, *S.E.* = 5.3) ($t = 2.94$, $p = .005$), emotional disturbance (35%, *S.E.* = 7.6) ($t = 2.51$, $p = .015$), developmental delay (33%, *S.E.* = 3.8) ($t = 4.62$, $p < .001$), or mental retardation (28%, *S.E.* = 4.7) ($t = 5.74$, $p < .001$).

Table 10. Percentage of young children who received preschool special education services whose parents reported that their children participated in various organized activities outside of school, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Organized athletic activities*	36.7	32.6	35.4	43.4	27.8	38.8	37.7	55.1	46.2
Organized clubs or recreational programs*	12.6	12.3	25.7	17.2	‡	‡	10.2	21.6	21.6
Art or craft classes or lessons	11.1	11.6	16.5	23.6	9.3	20.6	13.0	18.6	9.2
Dance lessons	8.5	9.6	14.4	12.2	7.5	13.4	12.8	15.4	13.1
Performing arts programs (children's choirs, theater performances)*	7.8	7.6	17.5	19.5	10.6	‡	‡	17.0	12.9
Music lessons	10.1	6.5	5.8	11.1	3.3	13.9	8.0	10.1	13.7
Drama classes	‡	‡	‡	11.4	‡	‡	‡	3.1	‡

*The result of the chi-square analysis was significant at the $p < .05$ level.

‡ Reporting standards not met.

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

According to the PEELS parents' reports, children's participation in activities varied significantly by household income (see table 11). For example, more children from households with incomes over $40,000 (64%, *S.E.* = 2.5) participated in athletic activities relative to children from households with incomes of $20,001 to $40,000 (38%, *S.E.* = 2.8) (t = 7.0, p < .001) or children from households with incomes of $20,000 or less (28%, *S.E.* = 2.9) (t = 9.0, p < .001).

Table 11. Percentage of young children who received preschool special education services whose parents reported that their children participated in various organized activities outside of school, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Organized athletic activities*	27.6	37.7	64.1
Organized clubs or recreational programs*	9.2	16.2	24.5
Art or craft classes or lessons	15.9	14.4	19.0
Dance lessons*	8.8	9.0	18.5
Performing arts programs (children's choirs, theater performances)*	9.9	11.0	16.8
Music lessons*	4.7	6.6	13.7
Drama classes	2.9	2.2	3.2

*The result of the chi-square analysis was significant at the p < .05 level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

PEELS parents were also asked if their child participated at least once a month in play groups, story hours, Sunday school/church child care, lessons (e.g., swimming, art), athletic teams (soccer, T-ball), children's organizations (Scouts, Brownies), or other monthly group activities.[19] Fifty-seven percent (*S.E.* = 1.5) of the parents reported that their child had participated in a monthly children's extracurricular group activity. Of the children who participated at least once a month in an extracurricular group activity, 80 percent (*S.E.* = 1.5) of parents reported that their child participated in Sunday school or church child care. Less than 20 percent of parents reported that their child participated in each of the other activities.

[19] The activities presented in tables 9-11 are different from the activities presented in table 12 in that parents were asked if their child had **ever** participated in the activities presented in tables 9-11 while the children participated **at least once a month** in the activities presented in table 12. For example, parents were asked about "organized athletic activities" their child had **ever** participated in for activities presented in tables 9-11 and about "athletic teams" the child participates in **at least monthly** for the activities presented in table 12**.**

For example, 17 percent (*S.E.* = 1.1) of parents reported that their child participated in lessons, and 15 percent (*S.E.* = 1.0) of parents reported that their child participated in story hour at a library at least once a month. Parents were asked whether the other children who participated in these activities also had disabilities. Ninety-nine percent of parents reported that either none (65%, *S.E.* = 1.9) or only some (34%, *S.E.* = 1.9) of the other children who participated in the activities also had disabilities.

There were no statistically detectable differences in children's participation in these extracurricular group activities by gender or disability. However, participation in different extracurricular group activities did vary by household income (see table 12). For example, children from households with incomes greater than $40,000 (21%, *S.E.* = 1.7) were more likely to have taken lessons than were children from households with incomes of $20,001 to $40,000 (11%, *S.E.* = 2.4) (t = 3.21, p = .002) or children from households with incomes of $20,000 or less (8%, *S.E.* = 1.6) (t = 6.27, p < .001).

Table 12. Percentage of young children who received preschool special education services whose parents reported that their children participated in various group activities at least once a month, by household income: School year 2005-06

	Total	$20,000 or less	$20,001 to $40,000	More than $40,000
Sunday school/church child care	79.7	83.2	83.0	77.5
Lessons (swimming, art)*	16.8	8.0	10.7	21.3
Story hour (at library)	14.6	14.2	15.3	14.5
Athletic teams*	14.0	5.6	9.2	17.9
Play group*	13.1	6.3	9.3	16.2
Children's organizations (scouts, brownies)*	8.6	5.3	5.9	10.4
Other	1.3	‡	3.2	0.7

*The result of the chi-square analysis was significant at the p < .05 level.

‡ Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

PEELS children's reported participation in one or more of the 14 extracurricular activities varied significantly by parents' perception of the safety of their neighborhood (see table 13). Seventy-seven percent (*S.E.* = 1.3) of the children participated in at least one of the activities parents were asked about

during the interview. More children whose parents thought it was *very safe* for their children to play outside during the day in their neighborhood (82%, *S.E.* =1.7) participated in at least one extracurricular activity compared to children whose parents felt it was *somewhat safe* (71 %, *S.E.* = 2.1) (t = 3.54, p = .001) or *not at all safe* (60%, *S.E.* = 3.6) (t = 5.53, p < .001).

Table 13. Percentage of young children who received preschool special education services whose parents reported that their children participated in at least one organized activity outside of school, by parents' perception of the safety of their neighborhood: School year 2005-06

	Total	Very safe	Somewhat safe	Not at all safe
Participated in at least one of the 14 activities	77.3	81.7	71.4	59.6
Did not participate in any of the 14 activities	22.7	18.3	28.7	40.4

The result of the chi-square analysis was significant at the p < .05 level.
SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Overall, children participated in an average of one (M = 0.80, *S.E.* = 0.0) of the seven monthly extracurricular group activities parents were asked about during the interview (see table 12 for a list of the seven activities). There was a statistically significant difference in the average number of activities in which children participated, based on the parents' perceived safety of their neighborhood (F = 22.658, p < .001). Children whose parents felt it was *very safe* for them to play outside in their neighborhood during the day took part in more activities (M = 0.9, *S.E.* = 0.0) than children whose parents felt their neighborhood was *somewhat safe* (M = 0.7, *S.E.* = 0.0) or *not at all safe* (M = 0.5, *S.E.* = 0.1).

Children's participation in at least one extracurricular activity also varied significantly by how well the family's transportation met their needs (see table 14). More children whose parents described their transportation as *excellent* for meeting their family's needs (81%, *S.E.* = 1.7) participated in at least one extracurricular activity than did children whose parents described their transportation as *good* (73%, *S.E.* = 1.8) (t = -3.18, p = .002) or children whose parents described their transportation as *fair or poor* (67%, *S.E.* = 4.3) (t = -3.53, p = .001).

Table 14. Percentage of young children who received preschool special education services whose parents reported that their children participated in at least one organized activity outside of school, by parents' report of the way their transportation meets their needs: School year 2005-06

	Total	Excellent	Good	Fair/Poor
Participated in at least one of the 14 activities	77.3	81.2	72.5	66.7
Did not participate in any of the 14 activities	22.7	18.8	27.5	33.4

The result of the chi-square analysis was significant at the $p < .05$ level.
SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

There was also a statistically significant difference in the average number of activities children participated in by how well the family's transportation met their needs ($F = 18.591$, $p < .001$). Children whose parents described their transportation as *excellent* for meeting their family's needs participated in significantly more extracurricular activities ($M = 0.9$, *S.E.* = 0.0) than did children whose parents described their transportation as *good* ($M = 0.7$, *S.E.* = 0.0) or children whose parents described their transportation as *fair/poor* ($M = 0.7$, *S.E.* = 0.0).

Children's Participation in Family Recreation

Parents of children participating in PEELS were asked whether they had taken their child various places in the past month. Destinations included grocery stores, shopping malls, restaurants, public parks, places of worship, libraries, movies, and vacations. Nearly all children (99%, *S.E.* = 0.3) had gone with their parent to at least one of the places mentioned.

More than 90 percent of parents reported that their child went to restaurants (95%, *S.E.* = 0.5), grocery stores (95%, *S.E.* = 0.6), and shopping malls (94%, *S.E.* = 0.6) in the month prior to the interview, and more than 50 percent went to places of worship (72%, *S.E.* = 1.4), parks (72%, *S.E.* = 1.4), movies (58% , *S.E.* = 1.3), or libraries (52%, *S.E.* = 1.6). Twenty-nine percent (*S.E.* = 1.4) of parents reported taking their child on vacation in the last month.

Based on the parent interview data, children's participation in family recreation did not vary significantly by gender. Parent report of children's participation in family recreation did not vary

significantly by disability category, with the exception of going to a park or playground (table 15). For example, fewer children with other health impairments (53%, *S.E.* = 6.3) had gone to the park with their family compared to children with autism (75%, *S.E.* = 4.0) (t = -3.53, p = .001), a learning disability (75%, *S.E.* = 6.0) (t = -2.39, p = .02), a speech or language impairment (75%, *S.E.* = 2.0) (t = -3.42, p = .001), or a developmental delay (74%, *S.E.* = 2.7) (t = -2.9, p = .005).

Based on data from the parents' reports, children's participation in several activities varied significantly by household income (table 16). For example, more children from households with incomes of $40,000 or more (76%, *S.E.* = 1.3) had been to a place of worship in the month prior to the interview.

Table 15. Percentage of young children who received preschool special education services whose families had taken them various places in the previous month, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Restaurant or fast food place	93.9	93.8	84.7	96.7	84.5	‡	95.6	96.6	89.1
Grocery store	93.3	95.7	90.7	93.1	90.7	‡	91.4	95.6	94.4
Shopping mall	89.0	93.0	86.7	95.1	84.8	‡	92.4	94.5	91.7
Church, synagogue, or place of worship	62.3	70.4	69.7	74.4	73.1	64.2	65.3	72.1	73.9
Public park or playground*	74.8	73.5	59.3	74.9	64.1	59.8	53.1	75.3	62.1
Movies	49.1	57.3	38.5	64.7	39.5	67.7	46.4	60.2	42.5
Library	42.6	49.2	40.3	51.7	37.6	44.8	42.0	53.5	52.6
Vacations	31.4	31.1	17.1	28.4	30.6	40.8	20.4	26.0	29.8

*The result of the chi-square analysis was significant at the $p < .05$ level.

‡ Reporting standards not met.

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table 16. Percentage of young children who received preschool special education services whose families had taken them various places in the previous month, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Restaurant or fast food place*	91.1	94.1	97.6
Grocery store*	91.3	94.4	96.9
Shopping mall*	90.4	93.2	94.7
Church, synagogue, or place of worship*	65.7	70.4	75.6
Public park or playground	73.5	72.6	71.6
Movies*	47.3	54.0	63.0
Library	48.5	51.4	53.9
Vacations	23.9	29.8	29.8

*The result of the chi-square analysis was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

compared to children from households with incomes of $20,000 or less (66%, *S.E.* = 4.4) ($t = 2.31$, $p = .025$). Also, more children from households with incomes of more than $40,000 (63%, *S.E.* = 1.7) had gone to the movies in the month prior to the interview than had children from households with incomes of $20,001 to $40,000 (54%, *S.E.* = 2.4) ($t = 3.17$, $p = .002$) or children from households with incomes of $20,000 or less (47%, *S.E.* = 2.3) ($t = 5.0$, $p < .001$).

The number of locations children went with their parents varied significantly by how well the family's transportation met their needs ($F = 11.707$, $p < .001$). Overall, children went to an average of six ($M = 5.6$, *S.E.* = 0.6) different places with their family in the month prior to the parent interview. Children whose parents described their transportation as *excellent* for meeting their family's needs participated in significantly more activities with their family ($M = 5.8$, *S.E.* = 0.1) than did children whose parents described their transportation as *good* ($M = 5.4$, *S.E.* = 0.1) or children whose parents described their transportation as *fair* or *poor* ($M = 5.0$, *S.E.* = 0.2).

In addition to asking parents what activities they had engaged in with their child, parents were asked how easy it was to take their child with them when doing things like going to the store or an appointment, compared to other children of the same age.[20] Fifty percent (*S.E.* = 1.6) of parents reported that their child was *just as easy* as other children to take along when they went places; 25 percent (*S.E.* = 1.6) of parents reported it was *a little harder*; and 11 percent (*S.E.* = 0.8) of parents reported it was *much harder* to take their child places with them (see table 17).

Table 17. Percentage of young children who received preschool special education services whose parents felt it was easier, just as easy, a little harder, or much harder to take them along when they did things like go to the store, by gender: School year 2005-06

	Total	Male	Female
Easier to take places than other children	14.5	13.2	17.6
Just as easy to take places	49.8	47.4	55.7
A little harder to take places	24.5	27.3	17.8
Much harder to take places	11.2	12.1	8.9

NOTE: The chi-square analysis result was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

As shown in tables 17 through 19, parents' perceptions of how easy it was to take their child with them when they did things (e.g., go to the store) varied significantly by gender ($p < .001$), disability ($p < .001$), and household income ($p = .046$). For example, compared to parents of girls (9%, *S.E.* = 1.2), parents of boys (12%, *S.E.* = 1.0) were more likely to report that their child was much harder to take places than other children ($t = -2.24$, $p = .029$).

[20] The item presented in tables 17-19 is different from the items presented in tables 20-22. In the item presented in tables 17-19, parents were asked overall how easy it was to take their child with them when doing things, while parents were asked whether or not they had difficulty going a list of specific places in the items presented in tables 20-22. For example, for tables 17-19 parents were asked "Compared with other children his/her age, how easy is it to take your child with you when you do things like going to the store or keeping an appointment? Would you say your child is…" and response options included "easier to take places than other children," "just as easy to take places," etc. For tables 20-22, parents were asked "Compared to other families with children your child's age, would you say that your family has difficulty doing the following activities because of your child's behavior, disabilities, or special needs? Would you say your family has difficulty going to a grocery store?" and response options were "yes" and "no."

Parents of children from households with incomes of $20,000 or less (42%, *S.E.* = 3.7) were less likely to report that their child was just as easy to take places as other children than were parents from households with incomes of $20,001 to $40,000 (51%, *S.E.* = 2.7; t = 2.4, p = .02) or parents from households with incomes of more than $40,000 (52%, *S.E.* = 2.4; t = 2.04, p = .046).

In PEELS, parents of children with a speech or language impairment (6%, *S.E.* = 1.2) were less likely to indicate that their child was much harder to take places compared to parents of children with autism (29%, *S.E.* = 3.4; t = -6.93, p < .001), orthopedic impairment (30%, *S.E.* = 11.1; t = -2.19, p = .032), or emotional disturbance (31%, *S.E.* = 7.1; t = 3.57, p = .001).

Table 18. Percentage of young children who received preschool special education services whose parents felt it was easier, just as easy, a little harder, or much harder to take them along when they did things like go to the store, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Easier to take places than other children	3.4	9.5	‡	15.2	11.0	‡	9.6	18.3	12.5
Just as easy to take places	25.3	49.4	‡	49.3	34.7	‡	22.7	55.9	42.0
A little harder to take places	42.0	26.7	35.3	26.3	30.5	53.4	48.6	20.0	26.8
Much harder to take places	29.3	14.4	31.4	9.2	23.8	30.4	19.0	5.9	18.7

NOTE: The chi-square analysis result was significant at the p < .05 level.
‡ Reporting standards not met.
NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table 19. Percentage of young children who received preschool special education services whose parents felt it was easier, just as easy, a little harder, or much harder to take them along when they did things like go to the store, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Easier to take places than other children	12.7	14.0	15.3
Just as easy to take places	42.0	50.8	52.3
A little harder to take places	29.8	26.5	21.6
Much harder to take places	15.5	8.7	10.8

NOTE: The chi-square analysis result was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

PEELS parents were asked if they had difficulty going various places because of their child's behavior, disability, or special needs compared to other families that had children of the same age. At least 20 percent of parents reported that they had difficulty going to the mall (27%, *S.E.* = 1.2), grocery store (22%, *S.E.* = 0.9), place of worship (23%, *S.E.* = 1.0), library (21%, *S.E.* = 1.0), or restaurants (20%, *S.E.* = 1.1). Going to movies (17%, *S.E.* = 1.0), vacations (17%, *S.E.* = 0.9), and parks (9%, *S.E.* = 0.7) were perceived to be difficult for 9 to 17 percent of parents (see table 20).

Table 20. Percentage of young children who received preschool special education services whose parents reported having difficulty going various places because of their children's behavior, disabilities, or special needs, by gender: School year 2005-06

	Total	Male	Female
Shopping mall*	27.2	30.3	19.9
Church, synagogue, or place of worship*	22.8	26.6	14.0
Grocery store*	22.3	24.7	16.7
Library*	20.5	22.6	15.4
Restaurant or fast food place*	19.8	21.9	14.8
Movies	17.4	18.5	15.0
Vacations*	16.6	18.5	12.1
Public park or playground	8.7	9.5	6.8

*The result of the chi-square analysis was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Parents' perceptions of having difficulty going places with their child varied significantly by gender, disability, and household income. Parents of boys were more likely to report difficulty taking their child places than were parents of girls, except for going to the park and going to the movies (see table 20). For example, compared to parents of girls, parents of boys were more likely to report difficulty taking their child to the shopping mall (boys: 30%, *S.E.* = 1.5; girls: 20%, *S.E.* = 2.2) (t = -3.72, p < .001), place of worship (boys: 27%, *S.E.* = 1.3; girls: 14%, *S.E.* = 1.9) (t = -5.0, p < .001), and grocery store (boys: 25%, *S.E.* = 1.2; girls: 17%, *S.E.* = 1.5) (t = -4.14, p < .001).

In PEELS, parents' perceptions of how difficult it was to go places with their child also varied significantly by the child's disability. For example, more parents of a child with autism (59%, *S.E.* = 4.1) felt it was difficult going to the shopping mall because of their child's behavior, disabilities, or special needs than did parents of a child with mental retardation (44%, *S.E.* = 5.6) (t = 2.06, p = .044), an orthopedic impairment (32%, *S.E.* = 11.0) (t = 2.18, p = .033), a developmental delay (31%, *S.E.* = 3.2) (t = 4.79, p < .001), a learning disability (20%, *S.E.* = 4.8) (t = 5.2, p < .001), or a speech or language impairment (19%, *S.E.* = 2.1) (t = 7.7, p < .001). Parents of a child with autism (58%, *S.E.* = 4.2) were more likely to report having difficulty going to places of worship because of their child's behavior, disabilities, or special needs than were parents of a child with mental retardation (38%, *S.E.* = 5.2) (t = 3.08, p = .003), a low incidence disability (35%, *S.E.* = 9.3) (t = 2.29, p = .026), an orthopedic impairment (29%, *S.E.* = 10.3) (t = 2.5, p = .015), a developmental delay (24%, *S.E.* = 2.8) (t = 6.46, p < .001), a learning disability (18%, *S.E.* = 3.9) (t = 6.7, p < .001), or a speech or language impairment (15%, *S.E.* = 1.6) (t = -9.67, p < .001) (see table 21).

Table 21. Percentage of young children who received preschool special education services whose parents reported having difficulty going various places because of their children's behavior, disabilities, or special needs, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Shopping mall*	58.6	31.2	58.1	20.3	43.5	32.4	49.5	19.4	38.1
Church, synagogue, or place of worship*	58.2	23.7	43.1	17.9	37.5	29.4	46.5	14.5	35.1
Grocery store*	46.5	26.6	55.2	15.5	32.8	37.0	46.0	16.0	32.4
Library*	45.9	27.2	36.8	18.2	43.9	35.7	41.6	13.4	32.7
Restaurant or fast food place*	46.0	26.2	54.9	13.8	34.2	25.8	32.4	14.2	30.3
Movies*	45.1	22.9	30.2	15.3	42.8	32.4	32.3	9.8	32.4
Vacations*	40.4	19.6	40.2	12.6	32.4	48.8	43.5	7.5	30.2
Public park or playground*	15.7	10.4	20.8	3.3	22.7	41.6	21.1	4.3	25.0

*The result of the chi-square analysis was significant at the $p < .05$ level.

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).
SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Parents' perceptions of how difficult it was to go to the grocery store, shopping mall, or a restaurant with their child varied significantly by household income (table 22). For example, parents with a family income of $20,000 or less (36%, *S.E.* = 2.9) were more likely to report having difficulty taking their child to the shopping mall because of their child's behavior, disabilities, or special needs than were parents with a family income of greater than $40,000 (24%, *S.E.* = 1.7) (t = -3.3, p = .002).

Table 22. Percentage of young children who received preschool special education services whose parents reported having difficulty going various places because of their children's behavior, disabilities, or special needs, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Shopping mall*	36.0	26.7	24.2
Church, synagogue, or place of worship	28.0	20.2	22.2
Grocery store*	30.8	22.2	19.3
Library	25.8	21.2	18.2
Restaurant or fast food place*	26.1	20.3	17.3
Movies	22.1	19.0	15.0
Vacations	20.4	16.9	15.2
Public park or playground	13.1	7.4	7.7

*The result of the chi-square analysis was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Summary

This chapter presented a description of children's access to and participation in community activities, including extracurricular activities and family recreation. Children with disabilities participated in a wide range of individual and group extracurricular activities, from dance lessons and performing arts programs to athletic teams and play groups. In all, 77 percent of the children had participated in at least one extracurricular activity. Young children with disabilities also engaged in a number of recreation activities with their families. Ninety percent or more of the parents had taken their child to restaurants, grocery stores, or shopping malls in the past month; and 74 percent went to parks or playgrounds.

Children's participation in some but not all types of extracurricular activities and family recreation varied based on child and family characteristics, including gender, disability, and household income. As mentioned previously, these demographic factors are correlated among youth with disabilities, and these correlations have not been addressed in the analyses presented here. The analyses indicated that girls were more likely than boys to participate in clubs or recreational programs, art classes, and performing arts programs but equally likely as boys to participate in organized athletic activities and

family recreation activities. Parents of boys were more likely to report difficulty taking their child places compared to other children than were parents of girls.

Disability was also associated with participation in extracurricular activities and family recreation. For example, children identified as having a speech or language impairment were more likely to have participated in organized athletic activities than children with several other types of disability. Parents' perceptions of how difficult it was to go places because of their child's behavior or disability also varied by type of disability.

Participation in community activities also varied according to family income. Children from lower income households were less likely than children from higher income households to participate in organized athletic activities, take lessons, or to go to places of worship or to the movies with their family. Household income was also associated with pasents' reports on the ease with which they could take their child places, compared to other children the same age.

Finally, neighborhood safety and adequacy of transportation were also related to community access. More children whose parents thought it was *very safe* for their children to play outside during the day in their neighborhood participated in at least one extracurricular activity compared to children whose parents felt it was *somewhat safe* or *not at all safe*. Furthermore, more children whose parents described their transportation as *excellent* for meeting their family's needs participated in at least one extracurricular activity than did children whose parents described their transportation as *good, fair or poor.*

Chapter 4: Access to Educational Activities for Young Children with Disabilities

This chapter describes another aspect of access for young children with disabilities: access to educational and social kindergarten experiences for young children who received special education services in preschool. Data from PEELS are available to determine the extent to which young children spent their time in a regular education setting during their kindergarten year, the type of kindergarten program they attended, and the extent and type of modifications they received in their classrooms. This snapshot of kindergarten experiences for children who received special education in preschool will provide descriptive information for policymakers, practitioners, and researchers about differences in the way education programming is being delivered to students with disabilities, with particular attention to educational placements and access to the general education curriculum.[21]

Kindergarten signals the beginning of access to formal education for the majority of young children in the United States and is considered a normative experience for children ages 5 and 6 (Love, Logue, Trudeau, and Thayer 1992). Studies such as the Early Childhood Longitudinal Study (ECLS-K) have highlighted many aspects of the kindergarten experience, including characteristics of kindergarten teachers and their instructional practices (Guarino et al. 2006); the status of children's cognitive skills, knowledge and experiences, and social skills (West et al. 2000); gain in children's skills between fall and spring of the kindergarten year (West et al.2001); and trajectories of children's school experiences from kindergarten through third grade (Rathbun et al. 2004) and through fifth grade (Princiotta et al. 2006). Positive associations have been described between participation in kindergarten and academic achievement, engagement, pro-social skills, and behaviors; and negative associations have been noted

[21] For analyses that relate to provision of special education services, the sample is limited to those children who continued to receive special education in kindergarten. However, for analyses pertaining to non-special education issues, the complete PEELS sample is used, including children who continued to receive special education in kindergarten and those who had been declassified and no longer received special education services in kindergarten.

between participation in kindergarten and future special education referrals and grade retention (e.g., Clark 2001; Guarino et al. 2006; Plucker et al. 2004; Stofflet 1998; Walston and West 2004).

Research has highlighted variation in the range of experiences and activities to which all kindergarteners are exposed. This includes variation in length of instructional day (Flanagan, McPhee, and Mulligan 2009), in exposure to core content areas (Hamre and Pianta 2007), and in instructional settings (e.g., whole-group activities, small-group activities, individual work; Hamre and Pianta 2007). Some of this variation is associated with district-level factors such as metropolitan status. For example, in ECLS-K, 55 percent of children in the sample attended full-day kindergarten (West et al. 2001), and the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) noted that 38 percent of children in the suburbs, 28 percent of children in cities, 22 percent of children in rural areas, and 12 percent of children in towns attended full-day kindergarten programs (Flanagan et al. 2009).[22]

There has been limited research, though, on kindergarten experiences for children receiving special education services. Although 4.1 percent of the ECLS-K sample were children who were receiving special education services in kindergarten (Holt, McGrath, and Herring 2007), most of the data published from that study focus more generally on the classroom experiences of *all* young children in kindergarten.

Similarly, while there is some literature on the extent to which students receiving special education services are involved in the general education curriculum, research describing kindergarteners' experiences, in particular, is lacking. Over the last 20 years, there has been an increase in the amount of time children with disabilities spend in the regular education classroom along with a greater focus on academics (Ahearn 2006; Kemp and Carter 2000). Ahearn (2006) describes the early 1970s, under the Education of All the Handicapped Act (P.L. 94-142), as a time when children with disabilities primarily received instruction in separate classrooms. IEPs focused on the development of basic readiness skills, and little attention was given to academics. Recent research by Wehmeyer, Soukup and their colleagues

[22] Direct comparisons between PEELS and ECLS-B are not advised due to differences in the study designs.

(Lee, Wehmeyer, Soukup, and Palmer 2010 and Soukup et al. 2007) describes access to the general education curriculum, use of curriculum modifications and additional supports, and academic and social outcomes for older students with disabilities. Past reports (Carlson et al. 2008; 2009) from PEELS and the Special Education Elementary Longitudinal Study (SEELS) (Blackorby et al. 2004) have described different aspects of preschool experiences, such as teacher educational placements, characteristics, and academic performance, or later elementary and middle school experiences for children with disabilities, but have not previously focused on the kindergarten year. Daley and Carlson (2009) have also suggested that experiences and education practices for students with disabilities, ranging from eligibility decisions to educational settings, to curricula, may vary based on district characteristics.

This chapter addresses the following two research questions:

- What are the kindergarten experiences of young children with disabilities in terms of access to the general curriculum, enrollment in classes with peers without disabilities, instructional strategies, and full-day/part-day programs?
- How do these experiences vary by district size, district wealth, and metropolitan status?

This chapter begins by describing children's main educational settings, including the time spent in regular and special education settings and the kindergarten program type attended. Consistent with IDEA regulations stating that children with disabilities should have maximum access to the general education curriculum, this section also looks at the extent to which modifications to the curriculum were used. The second section of this chapter focuses on the general instructional activities that were used with children on a regular basis. The authors then describe the type of activities in which children were most frequently engaged. The final section of this chapter focuses on children's interactions with peers without disabilities within the kindergarten classroom, including the degree to which classrooms were composed of children in regular and special education and the specific ways that teachers tried to support social interaction between children with and without disabilities.

Throughout this chapter, the authors present classroom experiences as they varied by three district-level characteristics: district size, metropolitan status of the district, and district wealth. Readers

should be aware that these three district characteristics may be correlated, and the correlations have not been addressed in this report.

To examine kindergarten classroom experiences, data from the kindergarten year were combined across 4 years of the PEELS study. Data from 353 children who were in kindergarten during the 2003-04 school year were combined with data from 1,067 children who were in kindergarten during the 2004-05 school year, 1,011 children who were in kindergarten during the 2005-06 school year, and 311 children who were in kindergarten during the 2006-07 school year. All analyses presented in this chapter use data from all four waves combined and include only those children who were in kindergarten for the first time in one of the 4 years of data collection. In the spring of their kindergarten year, children in the PEELS sample were, on average, 73.4 months (*S.E.* = 0.2) old. While most of the children in the PEELS sample continued to receive special education services, 22 percent of children (*S.E.* = 1.7) were no longer eligible for special education under IDEA by kindergarten. In the following sections, we note where analyses are focused on all kindergarteners and where analyses are focused only on children who continued to receive special education services during kindergarten.

In this chapter, all comparative statements made have been tested for statistical significance using chi-square tests, unless otherwise noted. If the chi-square was significant, a *t*-test for dependent samples was conducted to examine differences between groups. Differences are discussed in this chapter only if they were found to be statistically significant at the $p < .05$ level.

Access to the General Education Curriculum

Time spent in regular education settings. Teachers were asked to indicate a child's main education setting as well as the amount of time the child spent per week in different settings (e.g., regular education classroom). For those PEELS children still receiving special education services in kindergarten, 73 percent (*S.E.* = 2.1) of teachers indicated that the regular education classroom was considered the main education setting during the kindergarten year; 27 percent (*S.E.* = 2.1) indicated the special education setting was the main setting. The primary location of children's classroom settings varied significantly by

district-level factors (see table 23). A larger proportion of children in very large districts were in the regular education classroom as their main setting (91%, *S.E.* = 1.9) compared to children in large districts (72%, *S.E.* = 5.0) (t = 3.76, p < .001), medium districts (69%, *S.E.* = 3.7) (t = 5.59, p < .001), or small districts (62%, *S.E.* = 4.9) (t = 5.16, p < .001). More children in rural districts (86%, *S.E.* = 3.1) were in the regular education classroom as their main setting compared to children in suburban districts (73%, *S.E.* = 3.5) (t = 2.57, p = .012) or urban districts (64%, *S.E.* = 3.8) (t = 4.93, p < .001). Children in very low-wealth districts (59%, *S.E.* = 3.2) were less likely to have regular education classrooms as their main education setting compared to children in high-wealth districts (72%, *S.E.* = 3.4) (t = -2.78, p = .007), medium-wealth districts (81%, *S.E.* = 6.0) (t = -3.24, p = .002), or low-wealth districts (76%, *S.E.* = 3.9) (t = -3.52, p = .001).

Table 23. Percentage of young children who received preschool and kindergarten special education services and primary type of classroom setting during their kindergarten year

	Regular education classroom	Special education setting
Total	72.7	27.3
District size*		
Small	62.2	37.8
Medium	69.1	30.9
Large	71.9	28.1
Very large	91.2	8.8
Metropolitan status*		
Urban	64.0	36.0
Suburban	73.3	26.7
Rural	86.0	14.0
District wealth*		
High wealth	72.3	27.7
Medium wealth	80.8	19.2
Low wealth	76.2	23.8
Very low wealth	58.7	41.3

*The result of the chi-square analysis was significant at the p < .05 level for both the regular education classroom and the special education setting.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

For those PEELS children still receiving special education services in kindergarten, an average of 17.1 hours per week (*S.E.* = 0.7) was spent in a regular education classroom and 7.1 hours per week (*S.E.* = 0.5) in a special education setting. The mean number of hours spent per week in a regular education classroom and special education setting differed significantly by district size (regular education: $F = 3.438$, $p = .022$; special education: $F = 14.601$, $p < .001$), and metropolitan status (regular education: $F = 10.289$, $p < .001$; special education: $F = 9.558$, $p < .001$). The mean number of hours spent per week in a special education setting differed significantly by district wealth ($F = 3.912$, $p = 0.013$); however, there were no significant differences by district wealth in mean number of hours spent per week in regular education classrooms. As shown in table 24, the mean hours per week in regular education ranged from 14.5 hours per week (*S.E.* = 1.3) in small districts to 19.8 hours per week (*S.E.* = 1.2) in very large districts. Children in very large districts spent significantly more hours per week in the regular education classroom than children in medium districts ($M = 14.8$, *S.E.* = 1.7) or children in small districts ($M = 14.5$, *S.E.* = 1.3). Children in large districts ($M = 18.2$, *S.E.* = 1.3) also spent significantly more hours per week in the regular education classroom than children in small districts ($M = 14.5$, *S.E.* = 1.3). In addition, children living in rural areas spent more hours in regular education classrooms ($M = 22.0$, *S.E.* = 1.1) than children living in urban areas ($M = 15.7$, *S.E.* = 1.1) or children living in suburban areas ($M = 15.9$, *S.E.* = 1.1).

Table 24. Mean number of hours per week young children who received preschool and kindergarten special education services spent in regular or special education settings during their kindergarten year

	Regular education classroom	Special education setting
Total	17.1	7.1
District size¤♠		
Small	14.5	9.7
Medium	14.8	7.2
Large	18.2	7.3
Very large	19.8	3.1
Metropolitan status¤♠		
Urban	15.7	9.5
Suburban	15.9	6.7
Rural	22.0	4.0
District wealth♠		
High wealth	14.7	6.9
Medium wealth	19.5	5.5
Low wealth	18.3	6.4
Very low wealth	16.2	10.3

¤The result of the ANOVA was significant at $p < .05$ level for mean hours of services in the regular education classroom.

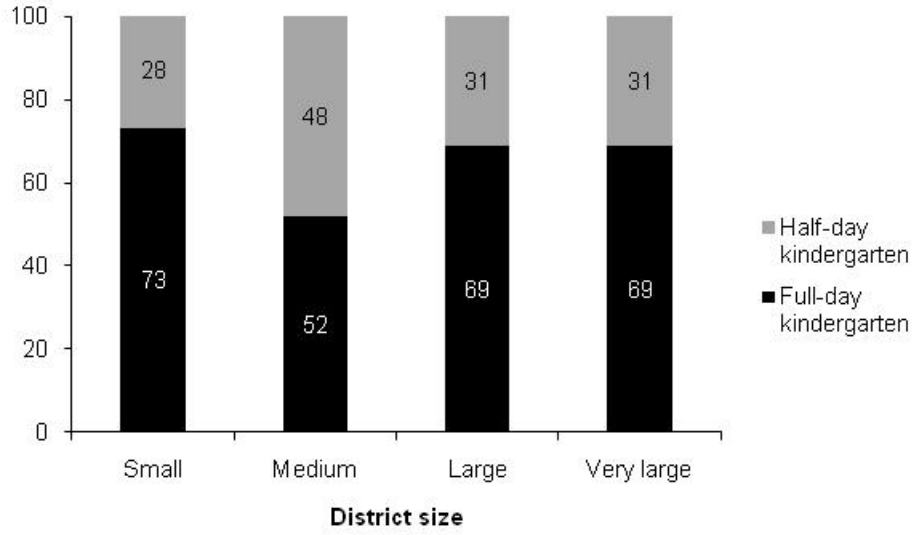
♠The result of the ANOVA was significant at $p < .05$ level for mean hours of services in the special education setting.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Kindergarten program type. In PEELS, parents were asked whether their child attended a full-day or half-day kindergarten program. Sixty-nine percent (*S.E.* = 3.3) of parents of all children, regardless of whether they were still receiving special education services in kindergarten, reported that their child attended a full-day program, and 31 percent (*S.E.* = 3.3) of parents reported that their child attended a half-day program. For PEELS children, no statistically detectable differences were observed in the type of program attended (full day v. half day) by district size ($p = .343$), but statistically significant differences were found for metropolitan status ($p < .001$) and district wealth ($p < .001$) (see figures 2 through 4). Children from suburban areas were less likely to attend all-day kindergarten (57%, *S.E.* = 5.5) than children from urban areas (80%, *S.E.* = 3.5) ($t = -3.54$, $p = .001$) or rural areas (83%. *S.E.* = 4.3) ($t = 3.23$, $p = .002$). In PEELS, children from high-wealth districts were less likely to attend full-day kindergarten

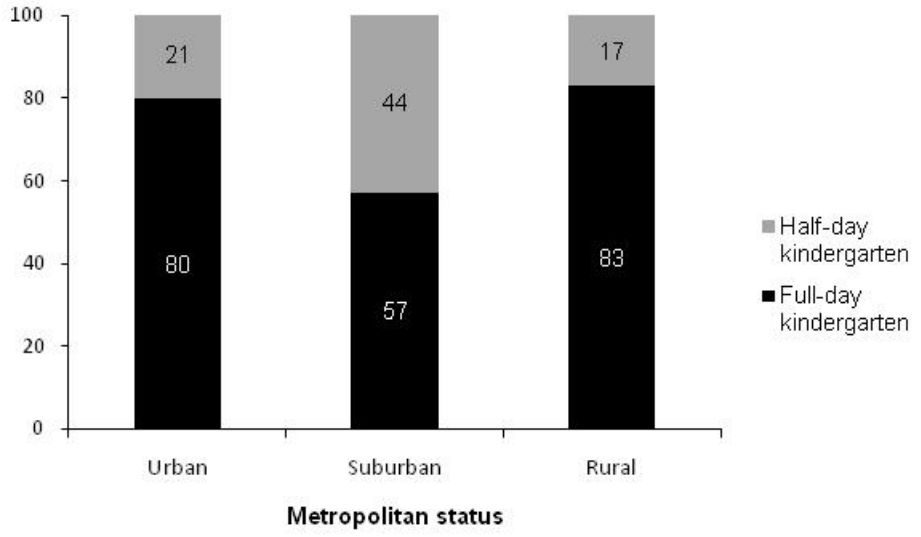
(44%, *S.E.* = 7.1), compared to children from medium-wealth districts (79%, *S.E.* = 4.2) (t = 3.59, p = .001), low-wealth districts (84%, *S.E.* = 4.6) (t = 3.99, $p < .001$), or very low-wealth districts (77%, *S.E.* = 4.2) (t = 3.69, $p < .001$).

Figure 2. Percentage of young children who received preschool special education services and type of kindergarten program attended, by district size



SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

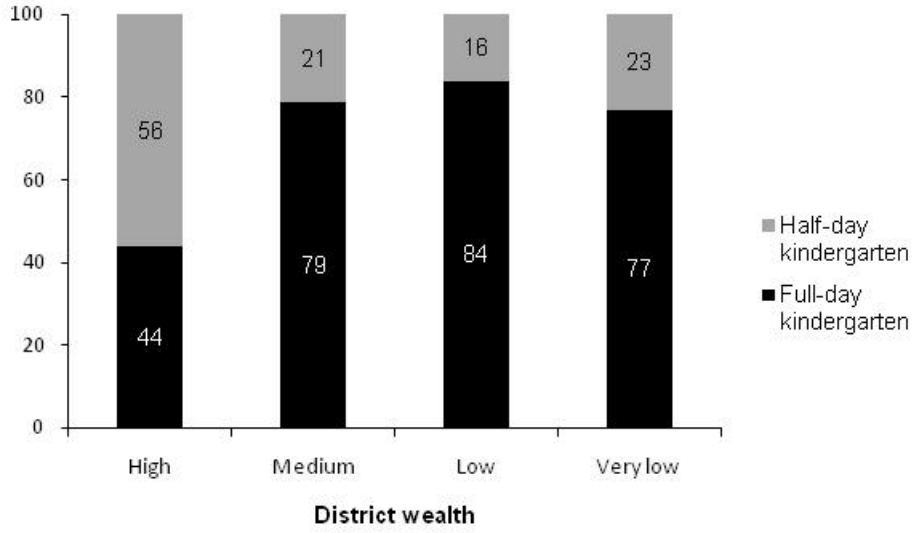
Figure 3. Percentage of young children who received preschool special education services and type of kindergarten program attended, by metropolitan status



NOTE: The result of the chi-square analysis result was significant at $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Figure 4. Percentage of young children who received preschool special education services and type of kindergarten program attended, by district wealth



NOTE: The result of the chi-square analysis result was significant at $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Accommodations and modifications to the curriculum. Under IDEA, children are entitled to adjustments to improve their access to the curriculum and facilitate their success. The regulations of IDEA require that every child who is identified with a disability must have, in his or her IEP, a statement that describes the services, program modifications, and supports necessary for the child to be involved and progress in the general curriculum. Historically, *modifications* have referred to changes in the delivery, content, or instructional level of a subject or test. *Accommodations* are adjustments provided to children with disabilities that may consist of techniques and materials to facilitate learning or help children communicate what they know without actually changing the basic curriculum.

PEELS kindergarten teachers were asked to report on the level of modification of curriculum materials for each child. For those children still receiving special education services in kindergarten, 44 percent (*S.E.* = 1.9) of teachers reported that the child received regular education grade-level materials without any modifications. Twenty-nine percent (*S.E.* = 1.6) of teachers reported that the child received

regular curriculum materials with some modifications; 12 percent (*S.E.* = 1.2) received substantial modifications. Fourteen percent (*S.E.* = 1.2) of teachers reported that the child received specialized curriculum or materials (see table 25). Differences in modifications to curriculum materials by district size, metropolitan status, and district wealth were examined. Significant differences were observed only for metropolitan status. Children from rural areas (54%, *S.E.* = 5.5) were more likely to receive regular education grade-level materials without any modifications than children from urban areas (39%, *S.E.* = 2.5) ($t = 2.68$, $p = .009$).

Table 25. Percentage of young children who received preschool and kindergarten special education services and the type of modification to curriculum materials received during their kindergarten year

	Regular education grade-level materials are used without modification	Some modifications in regular education materials have been made	Substantial modifications in regular curriculum materials have been made	Specialized curriculum or materials are used
Total	44.3	29.2	12.4	14.1
District size				
Small	39.4	27.9	12.4	20.3
Medium	42.3	23.1	14.8	19.9
Large	43.2	32.6	11.8	12.3
Very large	51.2	29.5	11.8	7.5
Metropolitan status*				
Urban	38.9	26.6	16.6	17.9
Suburban	44.0	31.5	11.7	12.9
Rural	54.0	28.3	7.2	10.6
District wealth				
High wealth	40.3	32.6	12.0	15.1
Medium wealth	48.3	30.1	12.7	9.0
Low wealth	49.7	23.6	13.0	13.7
Very low wealth	37.8	30.8	12.0	19.4

*The result of the chi-square analysis result was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Kindergarten teachers of children in PEELS were asked to report on the type of different accommodations, modifications, and learning aids that were provided to children as part of their IEP. For

those children still receiving special education services in kindergarten, accommodations and modifications that were used by at least a quarter of teachers included additional time to complete assignments (39%, *S.E.* = 2.2), slower paced instruction or modified instruction (36%, *S.E.* = 2.1), modified assignments (36%, *S.E.* = 2.0), and physical adaptations, such as preferential seating and special desks (28%, *S.E.* = 2.1) (see table 26).

Table 26. Percentage of young children who received preschool and kindergarten special education services and who received different accommodations, modifications, and learning aids during their kindergarten year

	Total
Additional time to complete assignments	39.4
Slower paced instruction or modified instruction	36.1
Modified assignments	35.7
Physical adaptations (e.g., preferential seating, special desks)	28.2
Modified grading standards	16.6
Computer software	9.7
Books on tape	9.1
Communication aids and visual cues	8.9
Computer hardware adapted for child's unique needs	3.8
Use of spell checker	0.1
Other	3.3

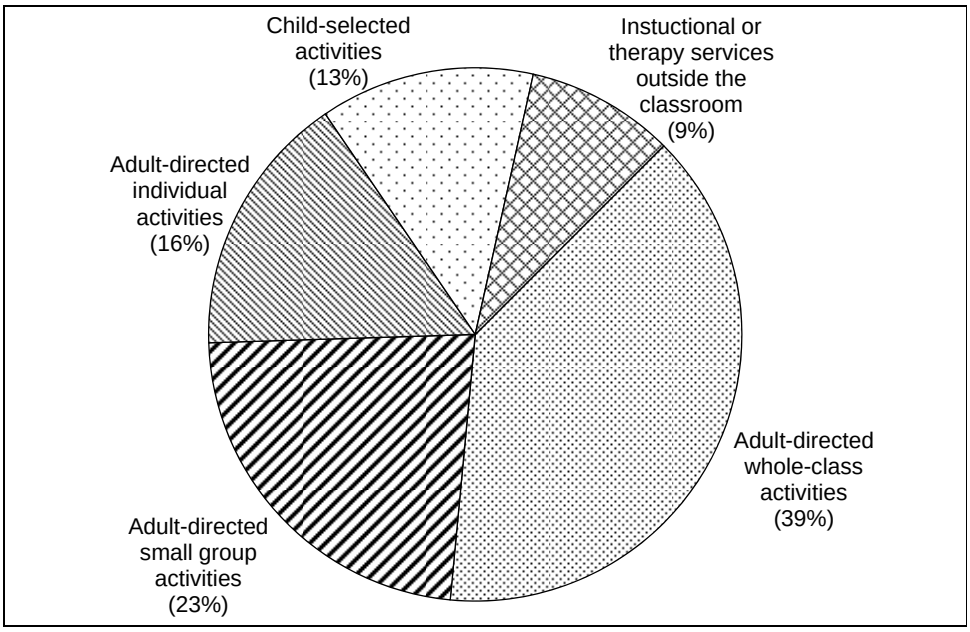
SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Classroom Practices and Activities in Kindergarten

General instructional activities. In PEELS, kindergarten teachers of children still receiving and those no longer receiving special education services in kindergarten were asked to report the percentage of time children spent engaged in different activities. As displayed in figure 5, children spent most of their time engaged in adult-directed whole-class activities (39%, *S.E.* = 1.0) and adult-directed small-group activities (23%, *S.E.* = 0.7). Children spent approximately 16 percent of their time (*S.E.* = 0.6) engaged in individual activities that were directed by an adult, and an additional 13 percent of their time (*S.E.* = 0.4) engaged in activities they selected themselves. Children who received special education services spent, on

average, 9 percent (*S.E.* = 0.3) of their time engaged in instructional or therapy services outside the classroom.

Figure 5. Percentage of young children who received preschool special education services who spent their instructional time in various activities during their kindergarten year



SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

There were no statistically detectable differences in the structure of children's activities in kindergarten (i.e., percentage of time in adult-directed whole-class or other types of activities) based on district size. The percentage of time that children spent in adult-directed whole-class activities varied significantly by districts' metropolitan status (F = 3.28, p = .044) (see table 27). However, none of the paired comparisons (i.e., urban compared to suburban or urban compared to rural) were statistically significant. The percentage of time children spent in instructional or therapy services outside the classroom (F = 3.07, p = .035) and adult-directed whole-class activities (F = 4.605, p = .006) varied significantly by district wealth. Children in special education in high-wealth districts spent a larger percentage of time in instructional or therapy services outside their classroom (M = 11%, *S.E.* = 0.8) than

children in low-wealth districts (*M* = 8%, *S.E.* = 0.6) or children in very low-wealth districts (*M* = 8%, *S.E.* = 0.8). Children in high-wealth districts were less likely to have spent their time in adult-directed whole-class activities (*M* = 35%, *S.E.* = 1.3) than children in medium-wealth (*M* = 41%, *S.E.* = 1.4) or low-wealth districts (*M* = 41%, *S.E.* = 1.4). Children in very low-wealth districts also were less likely to have spent their time in adult-directed whole-class activities (*M* = 37%, *S.E.* = 1.1) than children in medium-wealth districts (*M* = 41%, *S.E.* = 1.4).

Table 27. Mean percentage of time spent in different activities during kindergarten among young children who received preschool special education services

	Instructional or therapy services outside classroom	Adult-directed whole-class activities	Adult-directed small-group activities	Adult-directed individual activities	Child-selected activities
Total	9.2	38.5	23.0	16.0	12.7
District size					
Small	7.9	39.1	24.1	15.2	13.2
Medium	10.6	33.7	22.9	18.4	13.4
Large	8.6	39.3	23.2	16.4	12.2
Very large	10.8	41.1	21.6	14.7	11.5
Metropolitan status♠					
Urban	8.1	39.7	23.3	16.2	12.4
Suburban	9.9	36.5	22.7	16.6	13.3
Rural	9.4	41.1	23.5	14.1	11.7
District wealth♠¤					
High wealth	10.9	35.0	23.2	16.8	12.9
Medium wealth	9.4	41.0	21.1	15.4	12.5
Low wealth	8.2	41.3	22.4	15.2	12.5
Very low wealth	7.5	37.0	25.9	16.4	12.7

♠The ANOVA was significant at $p < .05$ for the mean time spent in adult-directed whole class activities.

¤The ANOVA was significant at $p < .05$ for the mean time spent in instructional or therapy services outside the classroom.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Participation in classroom activities. Kindergarten teachers in PEELS were asked to indicate the most frequent activities from a list of 29 options for children still receiving and those no longer receiving special education services in kindergarten. This list included several academic options, including alphabet

and language materials and counting and number materials. Based on teachers' reports, the activities in which kindergarten children were most frequently engaged included alphabet and language materials (26%, *S.E.* = 1.3); blocks and other building toys (17%, *S.E.* = 1.4); and paper, coloring books, and other writing materials (14%, *S.E.* = 1.2). Table 28 includes the 10 activities children in kindergarten engaged in most frequently.

Table 28. Percentage of young children who received preschool special education services and the activities they most frequently engaged in during their kindergarten year

	Total	Children in special education	Children no longer in special education
Alphabet and language materials	25.8	25.6	26.7
Blocks, Legos®, K'nex®, and other building toys	16.6	16.9	15.5
Paper, coloring books, crayons, pencils, and pens	13.9	13.0	17.1
Arts and crafts projects and materials, clay or play-doh	8.1	7.1	11.5
Children's books and magazines	7.0	7.2	6.4
Playhouse, toy kitchen, dishes, plastic food	5.9	6.1	5.2
Computer and software	5.6	5.3	6.4
Vehicles and work machines	3.5	3.6	3.1
Counting and number materials	3.5	4.0	1.5
Commercial educational toys	2.6	2.6	2.6

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Experiences With Typical Peers

***Classroom composition*.** In addition to access to curriculum and teaching practices, inclusion of children with disabilities in regular education classrooms is intended to enhance interaction with peers without disabilities. Kindergarten teachers were asked to indicate the total number of children with and without IEPs enrolled in each child's main classroom. Children in PEELS, both those still receiving and those no longer receiving special education services in kindergarten, were in classrooms with a mean of 4.1 special education students (*S.E.* = 0.1) and a mean of 13.4 regular education students (*S.E.* = 0.3).

Children who were still receiving special education services in kindergarten and who were served primarily in regular education classrooms were in settings with an average of 3.3 (*S.E.* = 0.1) special education students and 16.7 (*S.E.* = 0.3) regular education students. The number of children with IEPs in the regular education classrooms of children who were still receiving special education services varied significantly by district wealth (F = 2.774, p = .049), but not by district size (p = .624) or metropolitan status (p = .133). The number of children with IEPs served in regular education classrooms was significantly smaller for children from high-wealth districts (M = 2.9, *S.E.* = 0.1) than for children from medium-wealth districts (M = 3.6, *S.E.* = 0.3). The number of children without IEPs in the kindergarten classrooms of children who were still receiving special education services varied by district size (F = 3.017, p = .037) and metropolitan status (F = 4.835, p = .011). Children from small districts were in classes with significantly more children without IEPs (M = 17.7, *S.E.* = 0.5) than children from very large districts (M = 15.8, *S.E.* = 0.5). In addition, children in rural areas were in classes with significantly fewer children without IEPs (M = 15.1, *S.E.* = 0.6) than were children in urban areas (M = 17.3, *S.E.* = 0.5) or children from suburban areas (M = 17.2, *S.E.* = 0.4).

One way to examine the extent to which children receive services in classrooms that are more or less integrated is by examining the ratio of regular education students to the total class size. As noted previously, the predominant setting for young children with disabilities is within the regular education classroom. Table 29 presents the mean number of children with and without IEPs as well as the mean percentage of students without IEPs within regular education kindergarten classrooms. On average, children who received special education services in regular education kindergarten were in classes in which 82 percent (*S.E.* = 0.0) of the students were regular education students. The percentage of regular education students within the kindergarten classes varied significantly by district metropolitan status (F = 10.152, $p < .001$) and district wealth (F = 5.37, $p < .001$). Children in rural areas were in classes that were, on average, 78 percent regular education students (*S.E.* = 0.0), which is significantly less than children in urban areas (82%, *S.E.* = 0.0). Children in very low-wealth districts were in classrooms that were, on average, 80 percent regular education students (*S.E.* = 0.0), which is significantly less than the

percentage of regular education students in classrooms of students with disabilities who were in low-wealth (M = 81%, $S.E.$ = 0.0), medium-wealth (M = 81%, $S.E.$ = 0.0) or high-wealth districts (M = 85%, $S.E.$ = 0.0).

Table 29. Mean number of children with and without IEPs and percentage of children without IEPs within kindergarten classrooms for young children who received preschool and kindergarten special education services

	Number of children with IEPs	Number of children without IEPs	Percentage of children without IEPs
Total	3.3	16.7	82
District size♠			
Small	3.1	17.7	83
Medium	2.9	18.0	83
Large	3.2	16.2	82
Very large	3.6	15.8	81
Metropolitan status♠*			
Urban	3.2	17.3	82
Suburban	3.1	17.2	84
Rural	3.8	15.1	78
District wealth¤*			
High wealth	2.9	17.5	85
Medium wealth	3.6	16.0	81
Low wealth	3.2	16.4	81
Very low wealth	3.7	17.0	80

♠ The ANOVA was significant at $p < .05$ for the mean number of children without IEPs in the regular education classroom.

¤ The ANOVA was significant at $p < .05$ for the mean number of children with IEPs in the regular education classroom.

* The ANOVA was significant at $p < .05$ for the mean percentage of children without IEPs in the regular education classroom.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Support of social interaction. Programs engage in various practices in order to bring children with and without disabilities together. Among children in special education whose kindergarten teachers reported that their program supports social interaction, different methods were used (see table 30). The most frequent practices that teachers reported using were structuring play and task situations so they require interaction between the child with a disability and children without disabilities (85%, *S.E.* = 1.6), prompting and reinforcing the child with a disability for initiating and maintaining interactions with children without disabilities (71%, *S.E.* = 1.6), and prompting and reinforcing children without disabilities for initiating and maintaining interactions with the child with a disability (69%, *S.E.* = 1.8).

Table 30. Percentage of young children who received preschool and kindergarten special education services and methods used to support social interaction with nondisabled peers in kindergarten

	Total
We structure play and task situations so that they require interaction between this child and children without disabilities	84.8
We prompt and reinforce this child for initiating and maintaining interactions with children without disabilities	70.6
We prompt and reinforce the children without disabilities for initiating and maintaining interactions with this child	68.8
We assign children without disabilities to be "helpers" or "buddies" to this child	49.3
We present a specific disability awareness program during group times	20.1

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Summary

This chapter presented an overview of access to the kindergarten experience for young children who received preschool special education services. In PEELS, 69 percent of parents reported that their child attended a full-day program, and 31 percent of parents reported that their child attended a half-day program, regardless of whether the children were still receiving special education services in kindergarten. For those PEELS children still receiving special education services, 73 percent of teachers indicated that the regular education classroom was the child's main education setting and, on average,

children who received special education services in regular education kindergarten had classes in which 82 percent of the children did not have disabilities.

The activities in which kindergarten children were most frequently engaged included alphabet and language materials; blocks and other building toys; and paper, coloring books, and other writing materials. For those PEELS children still receiving special education services in kindergarten, 17.1 hours per week was spent in a regular education classroom and 7.1 hours per week in a special education setting. In terms of kindergarten curriculum, 44 percent of teachers reported that the child received regular education grade-level materials without any modifications; 29 percent reported that the child received regular curriculum materials with some modifications; 12 percent received substantial modifications; and 14 percent received specialized curriculum or materials. The most common accommodations and modifications were additional time to complete assignments, slower paced instruction or modified instruction, modified assignments, and physical adaptations, such as preferential seating and special desks.

As a group, young children who received preschool special education services had different experiences based on the types of districts in which they were enrolled. As mentioned previously, district factors may be correlated, and these correlations have not been addressed in the analyses presented here. In terms of district size, a larger proportion of children in very large districts had a regular education classroom as their main setting compared to children in smaller districts, and children in larger districts spent more hours per week in regular education classrooms than children in smaller districts.

District wealth was also associated with children's kindergarten experiences. Children in very low-wealth districts were less likely to have regular education classrooms as their main education setting compared to children in higher wealth districts. They were also more likely to attend full-day kindergarten compared to children from high-wealth districts. Children in low or very low-wealth districts spent a smaller percentage of time than children in high-wealth districts receiving instructional or therapy services outside their classroom.

There was variation in kindergarten experiences by metropolitan status. In rural districts, a larger percentage of children were in a regular education classroom as their main setting compared to children in suburban districts or urban districts. Children from rural areas also spent more hours in regular education classrooms than children in urban or suburban areas. Children from rural and urban areas were more likely to attend all-day kindergarten compared to children from suburban areas, and children from rural areas were more likely than children from urban areas to receive regular education grade-level materials without any modifications.

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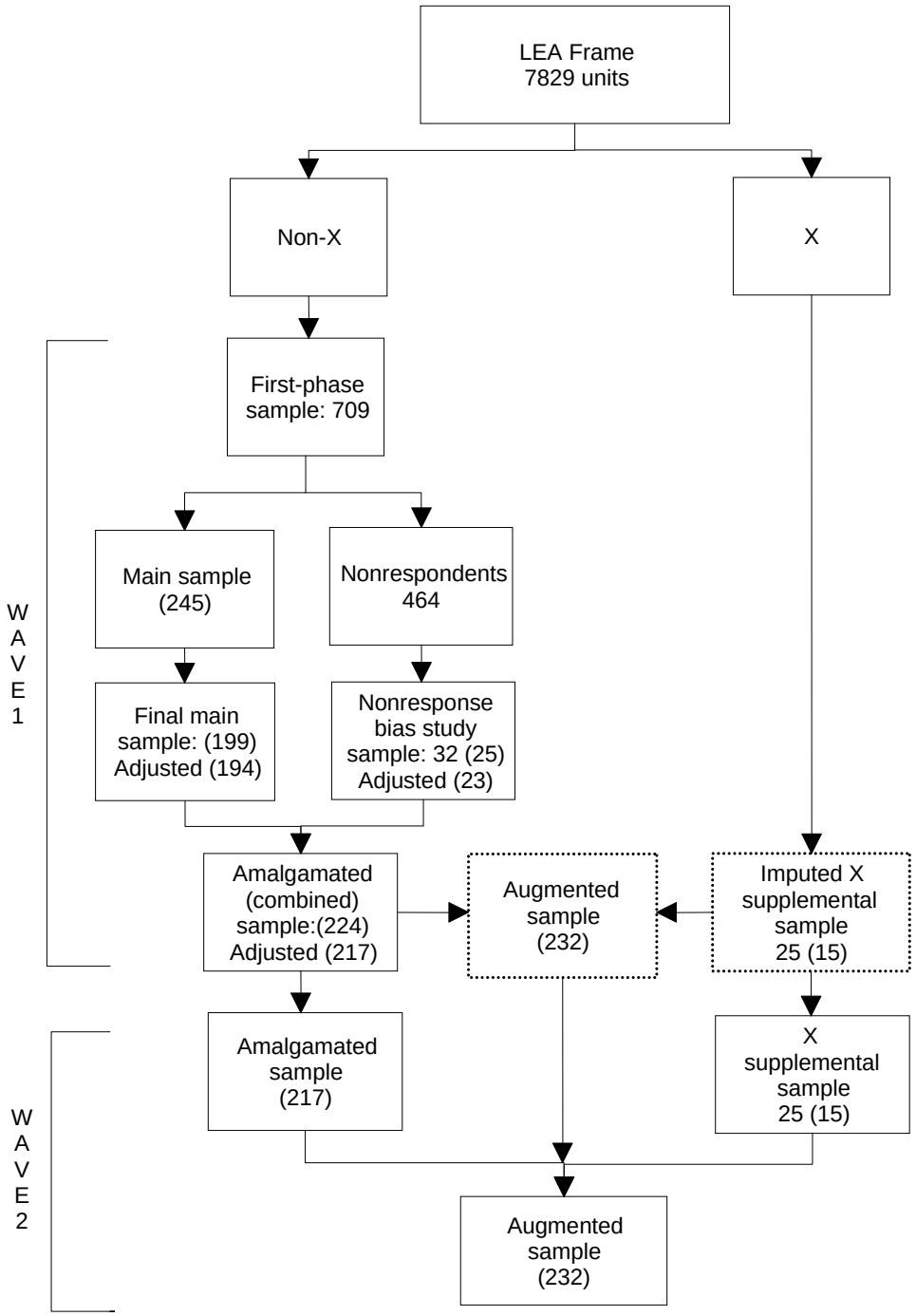
Appendix A: Diagram of Selection of LEA Sample



Note: X stands for the state that originally did not participate. LEA counts for X and non-X were suppressed for confidentiality reasons. The figures in parentheses are the number of participating LEAs. They were adjusted as the LEAs which did not contribute any data were dropped. The dotted boxes represent a mirror image created by imputation of the X supplemental sample selected in Wave 2.

Appendix B: Weighting Procedures

This appendix describes weighting procedures used in PEELS. The PEELS study was designed to use a nationally representative sample of local education agencies (LEAs) and children ages 3 through 5 with disabilities to generate weighted estimates that reflect that the characteristics of the population, not the sample.

District Weighting

The LEA weighting procedure includes developing base weights and replicate weights. Replicate weights were generated for each set of full-sample weights to allow the creation of estimated standard errors on all statistics.

District Base Weights

Calculation of the base weights started with the first-stage sample of 709 LEAs for the amalgamated sample and 25 LEAs for the supplemental sample. Analysis of nonresponse patterns revealed that nonresponse adjustment to the base sampling weights for the main sample could be carried out within the design stratum cells. Therefore, district base weights were recomputed within each sampling stratum cell as the number of districts on the sampling frame divided by the number of districts that participated in the study. The sum of the base weights represents 7,829 districts.[1] These weights will be denoted as w_h, which is the same for all LEAs within a stratum cell (defined by district size, region, and wealth category for non-supplemental LEAs and by district size alone for supplemental sample LEAs).

[1] This number is different from the total number of LEAs in the country because the smallest LEAs were not covered by the sample design.

Jackknife Variance Estimator and Replicate Weights

Two of the most commonly used variance estimation methods in sample surveys are the Taylor linearization method and the jackknife method. These methods have been excessively studied, documented (see, Shao and Tu, 1995; Wolter, 2007), and implemented in software packages such as WesVar (Westat, 2002)[2], SUDAAN, SAS, and others. The jackknife can be implemented in different forms. In Wave 1, we used the JKn method, which is used for a stratified design with several units (or PSUs) selected from each stratum. However, it was changed later to the JK2 method because the Data Analysis System (DAS) chosen as the platform for public data dissemination uses the JK2 method.[3]

The JK2 method assumes that the sample is selected by a stratified design with two PSUs selected from each stratum. However, if there are more than two PSUs in a stratum, we can randomly group the PSUs into two groups of PSUs and treat the two groups as sample PSUs in order to apply the JK2 method. The jackknife method uses many subsamples called replicates, which are created by dropping one PSU at a time. So one replicate corresponds to one dropped PSU. When there are two PSUs in a stratum, two replicates can be created. However, JK2 is different in this regard as it creates only one replicate from each stratum, yet it provides a valid variance estimator (see the WesVar manual). As was the case for PEELS, some modification of the data structure is often needed to use a certain desired form of the jackknife variance estimator. For this we defined variance strata, which may be different from the design strata, and variance units, which may be different from the original PSUs. The modifications were done following theoretical guidelines to reflect the sample design in variance estimation.

For the JK2 method, which requires two variance units per variance stratum, the variance strata were initially defined by the sampling strata by size, region, and wealth. However, sampling strata with no or a small number of responding LEAs were collapsed with a neighboring stratum cell with similar sampling rates. Sampling strata with a large number of LEAs were split into two variance strata.

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[2] For additional information on Wesvar's variance estimation and other technical characteristics, we refer the reader to the documentation in user's guide (Westat 2002), which can be downloaded from http://wesinfo.westat.com/version2binaries/html/computer/statistics/wv4.2_manual.pdf.

[3] The jackknife variance estimation technique is flexible so that a different jackknife method can be applied for various sample designs by appropriately modifying the data structure to accommodate the new method.

Altogether, 62 variance strata were created. Variance units were formed by randomly grouping districts within each variance stratum up to three variance units. The number of groups was determined by the number of replicates.

The replicate weights were then created for the JK2 method. If there are two variance units, this is done by assigning a zero weight to records in one variance unit chosen randomly and doubling the weights for records in the other variance units from the same variance stratum but leaving the weights for records in other variance strata unchanged. We used zeroing of the weights of the PSUs to be dropped to create replicates instead of physically dropping them from the data file. If the randomly chosen variance unit from the *i*-th variance stratum is denoted as U_{i1} and the other variance unit as U_{i2}, algebraically the *i*-th replicate weight for the *j*-th LEA record, w_{ij}^{*}, is given by

$$w_{ij}^{*} = \begin{cases} 0 & \text{if the } j\text{ - th record is in } U_{i1} \\ 2w_h & \text{if the } j\text{ - th record is in } U_{i2} \\ w_h & \text{if the } j\text{ - th record is not in the } i\text{ - th variance stratum} \end{cases}$$

where w_h is the full sample base weight for the stratum cell *h* to which the *j*-th LEA belongs, *i* = 1, 2, …, 62; *j* = 1, 2, …, 232.

The JK2 method can accept three variance units, but replicate weight calculation is more complex. In this case, another variance stratum number is needed; usually an existing number is arbitrarily assigned. Let this be *k* and the three variance units be randomly ordered as U_{i1}, U_{i2}, and U_{i3}. The replicate weight that corresponds to this situation is defined as:

$$w_{ij}^{*} = \begin{cases} 0 & \text{if } j\text{ - th record is in } U_{i1} \\ 1.5w_h & \text{if } j\text{ - th record is in } U_{i2} \\ 1.5w_h & \text{if } j\text{ - th record is in } U_{i3} \end{cases}$$

and

$$w_{kj}^{*} = \begin{cases} 1.5w_h & \text{if } j\text{ - th record is in } U_{i1} \\ 0 & \text{if } j\text{ - th record is in } U_{i2} \\ 1.5w_h & \text{if } j\text{ - th record is in } U_{i3} \end{cases}$$

Consequently, each LEA has a base weight w_h and 62 replicate weights, w^*_{1j}, w^*_{2j}, …, w^*_{62j}. If there is no nonresponse, these weights are used to calculate the variance estimate $\hat{V}(\hat{\theta})$ for a point estimate $\hat{\theta}$ by:

$$\hat{V}(\hat{\theta}) = \sum_{i=1}^{62} (\hat{\theta}_i - \hat{\theta})^2$$

where $\hat{\theta}_i$ is the i-th replicate estimate and $\hat{\theta}$ is the full sample estimate. When there is nonresponse, we apply nonresponse adjustments to the full sample weight and replicate weights, and the variance estimate is obtained by the same form as given above but the point estimates, $\hat{\theta}_i$'s and $\hat{\theta}$ are computed using the nonresponse adjusted weights.

Child Weighting: Within LEA Child Base Weight

After the child sampling was finished, the sampling status was defined by child status ID, which has 15 categories shown in table B-1.

Table B-1. Child status codes

Code	Definition	Description
1	Entering	The child record is entered into the computer system.
2	Ready sample	The child record is ready for sampling.
3	Sampled	The child record has gone through the sampling system.
4	Selected	The child record is selected into the sample.
5	Ineligible	The child is ineligible.
6	Enrolled	The child is enrolled for the study.
7	Declined	The child has declined.
8	Max reached/not sampled	The record is not sampled because the district has reached the cap of 80.
9	Max reached/deselected	The record is selected but subsequently deselected because the district has reached the cap of 80.
10	Nonresponse	The child was selected but did not respond.
11	Deselected-No LEA/child participation	The child was selected but subsequently deselected because neither LEA questionnaire was filled out nor any child participated in the study.
12	Desampled/district nonparticipation	The child was sampled but subsequently desampled because the whole district dropped out of the study.

Table B-1. Child status codes (continued)

Code	Definition	Description
60	Deceased	The child died after Wave 1.
61	Ineligible	The child turned out to be ineligible after Wave 1.
62	Study withdrawal	The child withdrew from the study after Wave 1.

The status codes 1, 2, and 4 are interim codes, and no child should have this code at the end of data collection in each wave. A large number of children have a status code of 3 since they were passed through the sampling system but not selected into the sample (those who were selected had a code value of 4 but subsequently moved to one of the remaining categories). Only children in category 6, however, are enrolled for the study. Children in categories 9 and 11 were selected first but then deselected due to the maximum 80 children limit for each district or district-wide nonparticipation. These and 1, 2, 8, and 12 are treated as not passed in the sampling system. Status codes 60, 61, and 62 are relevant only to the children in Wave 2.

Child sampling was done using the sampling system within sampling strata (called LEA-cohort) defined by District ID and the five cohort IDs [3-years-old ongoing (A_O), 4-years-old ongoing (B_O), 4-years-old historical (B_H), 5-years-old ongoing (C_O), 5-years-old historical (C_H)].

During reweighting, it was found that nine children had incorrect birthdates. The correction of their birthdates altered their sampling LEA-cohort strata. We recomputed sampling rates of those affected LEA-cohort strata, assuming the realized strata are the real strata from which they were selected. Four children from two LEAs swapped their LEA-cohort strata within their LEAs, and thus no change in the sampling rate was necessary for them. This approach may be termed as conditional on the realized LEA-cohort strata. This may introduce some bias but will reduce the variance. We believe that the bias introduced by this approach is negligible because the number of problem cases is small, and the sampling rate changes are not great.

A within-LEA base sampling weight for children by child sampling stratum was created for all sampled and selected children (categories 5, 6, 7, 10, 60, 61, 62) based on the sampling rate. The weight

for a selected child i in an LEA-cohort within LEA stratum h is defined as the inverse of the sampling rate that was applied:

$$w_{hi}^{c} = \frac{1}{r_{hi}}.$$

Note that the subscript *i* now identifies sample children, so it has a different meaning from the one used in the previous section. The sampling rate r_{hi} depends on the LEA stratum *h*, where the child's LEA is contained, and the child's particular LEA-cohort.

The sampling rate changed during the sampling process for many LEA-cohort strata, so children in those LEA-cohort strata were selected with a different sampling rate from that of other children in the same LEA-cohort stratum, depending on the time of sampling. Therefore, the children from the same LEA may have different base weights.

The sum of unconditional base weights in a cohort is close but not equal to the child list total of the cohort. We first considered using a conditional approach that defines the within-LEA child weight based on the realized sample size instead of using the sampling rate. This approach cuts down the variance due to random sample sizes that resulted from the Bernoulli sampling procedure used for child sampling from the ongoing lists. However, this approach became problematic because 48 LEA-cohort strata did not have any children selected due to small sampling rates and inaccurate list size estimates used to calculate the sampling rates and also by chance. Therefore, if we used the conditional approach, children from the 48 LEA-cohort strata would not be represented. To avoid this problem, we used the unconditional approach and the corresponding formula given above.

There are two exceptions to using unconditional weights:

- First, for LEA-cohort strata that have some children in categories 1, 2, 8, and 9, we used the conditional weighting method because not all the children were covered by the unconditional weighting; that is, some children were unsampled or deselected, which makes the sampling rate used for sample selection wrong. For these cases, the conditional weight was calculated by dividing the child list total of the LEA-cohort by the actual number of children selected for the LEA-cohort:

$$w_{hi}^{c} = \frac{N_{hi}}{n_{hi}}.$$

The conditional weight was the same for every child and summed exactly to the list total of the LEA-cohort stratum.

- Second, after we performed the weighting using the methods above, we checked the sum of weights against the list counts, by cohort, and found some large differences, which were mainly due to large discrepancies for the following LEA-cohorts: 1457B_O, 1457C_O, 3319C_H, 3495C_O, 1060C_O, 2044B_H, 2596B_H, 1917C_H, 1519B_H, 3256B_H, 9002A_O, 9002_B_O, 2549C_H, 1519A_O, 2864B_H, and 1472B_H. We recalculated the sampling weights using the conditional approach for them.

With this correction, the sum of weights was almost the same as the overall list total. The weights also agree quite well at various levels of aggregation.

Child Base Weight

The overall weight for the selected children was created by multiplying the child base weight and the LEA full sample weights, w_h, defined earlier:

$$w_{hi} = w_h w_{hi}^{c}.$$

The overall child replicate weights are then obtained by multiplying the child base weight and the LEA replicate weights.

Noncoverage Adjustment for Smallest LEAs

In the PEELS sample design, size 5 (very small) LEAs were not sampled. This is because size 5 LEAs accounted for only a small percentage of the whole target population but required more resources to sample because they are numerous. We decided to adjust for the noncoverage of size 5 children by increasing the size 4 children's base weights by a ratio factor calculated from the original frame stratified by region and wealth. Note that only size 4 children's weights are adjusted. The adjusted weights are given by

$$w_{hi}^{*} = \begin{cases} w_{hi}, & \text{if size less than 4,} \\ w_{hi} f_{hi}^{\text{cov}}, & \text{if size} = 4, \end{cases}$$

where f_{hi}^{cov} is the coverage adjustment factor for size 4 LEAs. Table B-2 shows the factors by region and wealth class.

Table B-2. Non-coverage adjustment factors

Region	Wealth	Non-coverage factor
1	1	1.0798
1	2	1.1203
1	3	1.2089
1	4	1.4796
2	1	1.0530
2	2	1.0391
2	3	1.0517
2	4	1.0699
3	1	1.1428
3	2	1.2300
3	3	1.4222
3	4	1.5694
4	1	1.2022
4	2	1.3007
4	3	1.3887
4	4	1.4203

Nonresponse Adjustment of Child Base Weight

The child base weights were adjusted to compensate for the nonresponding sample children. Each of the four input datasets contain all the children who have child status ID equal to 5, 6, 7, or 10, where 5 = ineligible, 6 = enrolled, 7 = declined, and 10 = nonresponse. Only children with child status ID = 6 are enrolled in the study. The eligibility of children with status 10 was unknown for most records; however, for 182 records this could be determined by a subcoded value of child status ID (see table B-3). The weights of the enrolled children were adjusted to account for the unknown eligibility and nonresponse.

Table B-3. Subcodes for child eligibility

Code	Description	Eligibility
1	Received, eligibility status not reported/not known	Unknown
2	Received, eligible case, district could not reach family	Known
3	Received, eligible case, problem not resolved	Known
4	Enrollment form not received	Unknown
5	Enrollment form received late	Unknown

We first tried to use CHAID analysis to define the adjustment cells for the main sample based on the size, region, wealth, age, and placement on the ongoing or historical lists. We found that the stratification variables size, region, and wealth were the most significant predictors of nonresponse. We decided to use the stratification cell as the initial nonresponse adjustment cell.

Since the eligibility of some children was not known, adjustment was done in two stages. First, the nonresponse status was redefined as

Status	Meaning
1	Enrolled
2	Eligible but declined
3	Ineligible
4	Nonresponse, eligibility unknown

In the first stage adjustment, the adjusted weight was $w_{hi}^{**} = w_{hi}^{*} f_{hi}^{NR1}$, where f_{hi}^{NR1} is the factor defined in the table below. S_j is defined as the sum of weights of all cases within each of the nonresponse cells. The nonresponse adjustment factor f_{hi}^{NR1} is then determined depending on the child sample status by:

Status	Adjustment factor
1	$\frac{S_1 + S_2 + S_3 + S_4}{S_1 + S_2 + S_3}$
2	$\frac{S_1 + S_2 + S_3 + S_4}{S_1 + S_2 + S_3}$
3	$\frac{S_1 + S_2 + S_3 + S_4}{S_1 + S_2 + S_3}$
4	0

In the second stage adjustment, the adjusted weight is $w_{hi}^{***} = w_{hi}^{**} f_{hi}^{NR2}$, where the nonresponse adjustment factor f_{hi}^{NR2} is determined as follows:

Status	Adjustment factor
1	$\frac{S_1 + S_2}{S_1}$
2	0
3	1

Truncation of Weight Outliers for Child Base Weights

After nonresponse adjustment, we truncated the weight outliers within five cohorts (A_O, B_O, B_H, C_O, and C_H). This was deemed necessary because the weights vary too much to contain the variance at a reasonable level. Sometimes a simple rule, such as the three-median rule, was used to set truncation of boundary. This rule truncates weights that are larger than three times the median weight to three times the median weight:

$$w_{hi}^{****} = \begin{cases} w_{hi}^{***}, & \text{if } w_{hi}^{***} \le 3 \text{ Median}, \\ 3\text{Median}, & \text{if } w_{hi}^{***} > 3 \text{ Median}. \end{cases}$$

However, for some child sampling strata, the three-median rule caused too many weights to be truncated. We tried to keep the percentage of truncated weights to less than 3 percent so, for some child sampling strata, we used a three-and-a-half-median or four-median rule. For the children who had their full sample weight truncated, all the replicate weights were reduced by the same percentage.

Post-stratification of Enrolled Child Weight

The nonresponse adjusted children's weight was further adjusted by a post-stratification procedure. The control totals for post-stratification contained the number of special education children enrolled by December 2003, by age, for each of the 50 states and the District of Columbia.

Post-stratification was necessary because several states did not have any children sampled, either because, by chance, no LEAs in those states were selected, or none of the selected LEAs in a state responded. It should be noted that the control totals are snapshot figures, while the PEELS population includes children enrolled during a certain time period. The control totals also include children from the very small (size 5) school districts, which were not covered (but were adjusted for) by the PEELS sample.

The post-strata were formed by crossing the three age groups and nine subregions formed by combining states within the same region by their geographical proximity. The size of states in terms of number of children was also taken into consideration in order to obtain similar-sized post-strata.

After the post-stratification was applied, we created the final enrolled children's base weight. This weight is called the children's base weight, although it resulted from various adjustments, because it will be the base for further nonresponse adjustments for different data collection instruments. These are discussed in the following section.

Parent Interview Weights

The parent interview was attempted for all enrolled children, but some parents did not respond. The weights for the parent interview data were created by adjusting the enrolled children's base weights for parent nonresponse. The nonresponse adjustment cells were the same as the ones formed for the nonresponse adjustment to obtain the enrolled children's base weight. This worked well because the response rate for the parent interview was very high. Ninety-six percent of the enrolled children had a parent interview for Wave 1. In Wave 2, responses were received from 93 percent of parents, while 91 percent of the parents responded in both waves.

Child Assessment Weights

The child assessment was done in two ways. Most of the children were assessed directly, but for children who could not complete the direct assessment, an alternate assessment was conducted. Together, they represent the whole population of either directly assessable children or unassessable children. The child assessment weight was created by using the enrolled children's weights as base weights and adjusting for child nonresponse in the assessment data. The nonresponse adjustment cells were the same as the ones formed for the nonresponse adjustment to create the enrolled children's base weight. The response rate for child assessment was very high. Ninety-six percent of the enrolled children were assessed in Wave 1; a total of 95 percent were assessed in Wave 2, and 92 percent of the amalgamated sample was assessed in both waves.

Teacher Weights

The teacher interview was attempted for the teachers of all enrolled children, but some teachers did not respond. The weights for the teacher interview data were created by adjusting the enrolled children's base weights for teacher nonresponse. The nonresponse adjustment cells were the same as the ones formed for the nonresponse adjustment to create the enrolled children's base weight. The response rate for teachers was lower than for parents and child assessment. Seventy-nine percent of the children's teachers responded in Wave 1; a total of 84 percent responded in Wave 2; and 65 percent responded in both waves.

Parent-Child Weights

In many analyses, both parent interview and child assessment information are needed; the parent-child weight was for children with both child assessment data and parent interview data. The enrolled children's weights were used as base weights and adjusted for the nonresponse of children in the parent-child data. The nonresponse cells were the same as the ones formed in the nonresponse adjustment for children's base weight. The response rates for the parent interview and the child assessment were very high; 92 percent of the children had both a child assessment and parent interview in Wave 1; a total of 89

percent had both a child assessment and parent interview in Wave 2; and 85 percent had both a child assessment and parent interview in both waves.

Parent-Child-Teacher Weights

In some analyses, information from all three instruments is needed. The parent-child-teacher weight is for children with completed interviews for parent interview, child assessment, and the teacher interview. The enrolled children's weights were used as base weights and adjusted for the nonresponse of children in the parent-child data. The nonresponse cells were the same as the ones formed in the nonresponse adjustment for children's base weight. Because of the lower response rate in the teacher interview, the response rate for the parent-child-teacher data is relatively low. Seventy percent of the children had a child assessment, parent interview, and teacher interview in Wave 1; a total of 76 percent had a child assessment, parent interview, and teacher interview in Wave 2; and 57 percent had completed interviews for all three in both waves.

Use of Weights in Analysis

Table B-4 provides a description of each weight available after Wave 4 and the analyses for which it is used.

Table B-4. Description and uses of Waves 1-4 cross-source and longitudinal weight variables

Description	Uses
Cross-sectional Wave 1 assessment weight	Analyses using only data from the Wave 1 assessment
Cross-sectional Wave 2 assessment weight	Analyses using only data from the Wave 2 assessment
Cross-sectional Wave 3 assessment weight	Analyses using only data from the Wave 3 assessment
Cross-sectional Wave 4 assessment weight	Analyses using only data from the Wave 4 assessment
Longitudinal assessment weight for Waves 1 and 2	Analyses using only assessment data, from Waves 1 and 2
Longitudinal assessment weight for Wave 1, Wave 2, and Wave 3	Analyses using only assessment data, from Waves 1 and 3, or Waves 2 and 3, or all three Waves
Longitudinal assessment weight for Wave 1, Wave 2, Wave 3, and Wave 4	Analyses using only assessment data from Waves 1 and 4, 2 and 4, 3 and 4, or 1, 2, and 4, 1, 3, and 4, 2, 3, and 4, or all four Waves
Cross-sectional Wave 1 parent interview weight	Analyses using only data from the Wave 1 parent interview file
Cross-sectional Wave 2 parent interview weight	Analyses using only data from the Wave 2 parent interview file

Table B-4. Description and uses of Waves 1-4 cross-source and longitudinal weight variables (continued)

Description	Uses
Cross-sectional Wave 3 parent interview weight	Analyses using only data from the Wave 3 parent interview file
Cross-sectional Wave 4 parent interview weight	Analyses using only data from the Wave 4 parent interview file
Longitudinal parent weight for Waves 1 and 2	Analyses using only parent file data, from Waves 1 and 2
Longitudinal parent weight for Wave 1, Wave 2, and Wave 3	Analyses using only parent file data, from Waves 1 and 3, or Waves 2 and 3, or all three Waves
Longitudinal parent weight for Wave 1, Wave 2, Wave 3, and Wave 4	Analyses using only parent interview data from Waves 1 and 4, 2 and 4, 3 and 4, or 1, 2, and 4, 1, 3, and 4, 2, 3, and 4, or all four Waves
Cross-sectional Wave 1 teacher weight	Analyses using only data from the Wave 1 teacher files
Cross-sectional Wave 2 teacher weight	Analyses using only data from the Wave 2 teacher files
Cross-sectional Wave 3 teacher weight	Analyses using only data from the Wave 3 teacher files
Cross-sectional Wave 4 teacher weight	Analyses using only data from the Wave 4 teacher files
Longitudinal teacher weight for Waves 1 and 2	Analyses using only teacher file data, from Waves 1 and 2
Longitudinal teacher weight for Wave 1, Wave 2, and Wave 3	Analyses using only teacher file data, from Waves 1 and 3, or Waves 2 and 3, or all three Waves
Longitudinal teacher weight for Wave 1, Wave 2, Wave 3, and Wave 4	Analyses using only teacher data from Waves 1 and 4, 2 and 4, 3 and 4, or 1, 2, and 4, 1, 3, and 4, 2, 3, and 4, or all four Waves
Cross-sectional Wave 1 program director/principal weight	Analyses using only data from the Wave 1 program director or principal files
Cross-sectional Wave 2 program director/principal weight	Analyses using only data from the Wave 2 program director or principal files
Cross-sectional Wave 3 program director/principal weight	Analyses using only data from the Wave 3 program director or principal files
Cross-sectional Wave 4 program director/principal weight	Analyses using only data from the Wave 4 program director or principal files
Cross-sectional Wave 1 parent/assessment weight	Analyses using data from the Wave 1 parent interview and Wave 1 assessment files
Cross-sectional Wave 2 parent/assessment weight	Analyses using data from the Wave 2 parent interview and Wave 2 assessment files
Cross-sectional Wave 3 parent/assessment weight	Analyses using data from the Wave 3 parent interview and Wave 3 assessment files
Cross-sectional Wave 4 parent/assessment weight	Analyses using data from the Wave 4 parent interview and Wave 4 assessment files
Longitudinal parent/assessment weight for Waves 1 and 2	Analyses using data from parent **and** assessment files, from Waves 1 and 2
Longitudinal parent/assessment weight for Wave 1, Wave 2, and Wave 3	Analyses using data from parent **and** assessment files, from Waves 1 and 3, or Waves 2 and 3, or all three Waves
Longitudinal parent/assessment weight for Wave 1, Wave 2, Wave 3, and Wave 4	Analyses using data from parent **and** assessment files, from Waves 1 and 4, 2 and 4, 3 and 4, or 1, 2, and 4, 1, 3, and 4, 2, 3, and 4, or all four Waves

Table B-4. Description and uses of Waves 1-4 cross-source and longitudinal weight variables (continued)

Description	Uses
Cross-sectional Wave 1 parent/assessment/teacher weight	Analyses using data from the Wave 1 parent interview, Wave 1 assessment, and Wave 1 teacher files
Cross-sectional Wave 2 parent/assessment/teacher weight	Analyses using data from the Wave 2 parent interview, Wave 2 assessment, and Wave 2 teacher files
Cross-sectional Wave 3 parent/assessment/teacher weight	Analyses using data from the Wave 3 parent interview, Wave 3 assessment, and Wave 3 teacher files
Cross-sectional Wave 4 parent/assessment/ teacher weight	Analyses using data from the Wave 4 parent interview, Wave 4 assessment, and Wave 4 teacher files
Longitudinal parent/assessment/teacher weight for Waves 1 and 2	Analyses using data from parent, assessment, **and** child files, from Waves 1 and 2
Longitudinal parent/assessment/teacher weight for Wave 1, Wave 2, and Wave 3	Analyses using data from parent, assessment, **and** child files, from Waves 1 and 3, or Waves 2 and 3, or all three Waves
Longitudinal parent/assessment/teacher weight for Wave 1, Wave 2, Wave 3, and Wave 4	Analyses using data from parent, assessment, **and** child files, from Waves 1 and 4, 2 and 4, 3 and 4, or 1, 2, and 4, 1, 3, and 4, 2, 3, and 4, or all four Waves

Note: Data from the demographics files may be used in conjunction with data from other files without changing the weight.

Appendix C: Results from PEELS Nonresponse Bias Study

This report presents results of a nonresponse bias analysis of PEELS Wave 1 data. The study was conducted in response to concerns about potential bias from low stage 1 response rates. As a result, terms of clearance for PEELS (OMB #1820-0656) required the U.S. Department of Education's Office of Special Education (OSEP) to submit to the Office of Management and Budget (OMB) a nonresponse analysis report.

To provide the needed confidence to data users, data producers, and study sponsors, OSEP funded a small-scale sample survey of LEAs that initially did not agree to participate in PEELS (464 LEAs or 65 percent of the original LEA sample). Westat selected a random sample of 32 nonparticipating LEAs in Wave 1, allocating the sample to the existing size strata. While 25 of those LEAs agreed to participate, only 23 (72 percent) actually followed through with their participation, meaning they successfully recruited one or more families. This nonresponse study sample is roughly 10 percent of the size of the main LEA sample. Table C-1 shows the size distribution of the LEAs participating in the nonresponse study.

Table C-1. Frequency of LEAs in PEELS by size stratum and sample type

Size stratum	U.S.	Main sample	Nonresponse sample
Total	7,818	194	23
Very Large	117	33	2
Large	629	32	5
Medium	1,897	43	6
Small	5,175	86	10

The instruments and data collection procedures were exactly the same for the main and nonresponse study participants, so any differences between the two samples can be attributed to the differences in the characteristics of the subpopulations that the samples represent (main study sample and nonresponse study sample).

This nonresponse bias study has three primary research questions. They are:

1. Can we produce weighted data from the main sample that provides unbiased national estimates of student performance on key outcome variables?
2. Do statistical differences exist between the performances of students in participating districts and students in nonresponse study districts on key outcome variables?
3. Is student performance on key outcome variables a factor in the decision to participate in PEELS?

Methods Used to Analyze Nonresponse Bias

Our general strategy for assessing bias due to nonresponse includes three types of analyses. The first set of analyses involves comparisons between weighted data of the *main* sample versus weighted data of the *combined* sample (which includes the main and nonresponse samples). The second set of analyses compares unweighted data in the main sample with the nonresponse sample. A final set of analyses involves logistic regressions using participation status as the dependent variable and child performance among the independent variables. Each of these analyses is discussed in more detail below.

The combined sample, which includes the main plus nonresponse study samples, with proper weighting, will provide unbiased estimates because the combined sample will represent the entire population. Statistical tests that compare these unbiased estimates and estimates obtained solely from the (weighted) main sample will reveal whether the main sample estimates are significantly different from the unbiased estimates. We will refer to this method as the *combined-main comparison.*

Nonresponse is of less concern if nonrespondents are not systematically different from the respondents in terms of the study variables. The second analysis focuses on this aspect using the super-population framework in which the two samples are assumed to be selected from hypothetical infinite populations of respondents and nonrespondents. This framework enables us to ignore the weights, simplifying the comparison. We performed *t*-tests to determine whether the differences between estimates

obtained from the unweighted data are significant or not. This method of comparison is termed the *unweighted comparison.*

The final set of analyses involves a series of logistic regressions in which participation status (main or initial respondents v. initial nonrespondents) is predicted using child age, disability category, and assessment scores. Significant coefficients for the assessment scores will provide evidence for potential bias due to nonresponse for those variables.

It should be noted that a significant difference in the unweighted analysis does not imply that the weighted main sample would be biased for the variable in question. It simply means that bias potential is greater. It is possible to eliminate the bias potential through effective nonresponse adjustment weighting. Therefore, greater emphasis should be given to the results of the combined-main comparison.

Outcome Variables

Wave 1 demographic and direct assessment data were used to analyze nonresponse bias. Among the PEELS data, the direct assessment data are very key, as they will characterize the performance of preschoolers with disabilities and be used to model factors affecting that performance. Further, one might expect children's assessment performances to differ for districts that initially refused to participate in PEELS relative to those that initially accepted the PEELS invitation. Participating children completed a one-on-one assessment of school readiness with a trained assessor. The assessment included the following subtests:

- preLAS 2000 Simon Says, a measure of English/Spanish language ability;
- preLAS 2000 Art Show, a measure of English/Spanish language ability;
- Peabody Picture Vocabulary Test (PPVT III), a measure of receptive language ability;
- Woodcock-Johnson III: Letter-Word Identification, a measure of pre-reading skill;
- Woodcock-Johnson III: Applied Problems, a measure of practical math skills;
- Woodcock-Johnson III: Quantitative Concepts-Concepts, a measure of conceptual math skills;

- Woodcock-Johnson III: Quantitative Concepts-Number Series;
- Leiter-R Attention Sustained Scale, a measure of attention;
- Individual Growth and Development Indicators (IGDI): Picture Naming, a measure of pre-reading skills;
- IGDI: Rhyming, a measure of pre-reading skills;
- IGDI: Alliteration, a measure of pre-reading skills;
- IGDI: Segment Blending, a measure of pre-reading skills; and
- Test of Early Math Skills, a measure of general math skills.

The above measures include a combination of performance (achievement) outcomes that we expect to be sensitive to the effects of programs and services that are provided to pre-elementary children and other variables (factors) that may help to explain performance. The PreLAS (Simon Says and Art Show) was used primarily to identify children needing a Spanish language assessment rather than the Direct Assessment (in English). As such, these two measures were excluded from the nonresponse bias analysis. The PPVT III, a measure of receptive language, is not considered to be an achievement measure. It was also excluded from the nonresponse bias analysis. Finally, the Test of Early Math Skills was thought to be largely duplicative of the several Woodcock-Johnson math measures already included in the analysis. Therefore, in order to reduce the complexity of the study, we elected to use only the Woodcock-Johnson measures. Thus, the remaining nine measures were used in the analysis.

Results

In the comparison of main and combined sample estimates of child assessment scores, we assumed that the estimates obtained from the combined sample were unbiased because they were based on the combination of main and nonresponse samples. To address the question of whether the main sample alone, which suffers a high rate of nonresponse, can produce unbiased estimates of the child assessment variables after weighting adjustment for nonresponses, we performed *t*-tests on the differences of the estimates obtained from the combined sample and the main sample. If a test result was significant

for a variable, we interpreted the result as evidence to indicate a potential for bias in the main sample estimates for the variable. A nonsignificant result indicated a lack of such evidence. Tables C-2 through C-4 present the test results for nine outcome performance score variables[1] and eight additional demographic variables, including age, sex, and disability category.

In the following discussion, we use 5 percent significance level for all tests. The test results are given in terms of the *p*-value. If a *p*-value is greater than 5 percent, the test result (i.e., the comparison being examined), to which that *p*-value applies, is not statistically significant. Thus, for a comparison yielding a *p*-value above 5 percent, the assumption is that there is no statistical difference between those means.

Comparisons Between the Weighted Main and Combined Samples

First, we looked at the age and sex distributions and also the distribution of disability categories as presented in table C-2. The combined sample estimate of male percentage is 71.5 percent, which is slightly higher than the main sample estimate of 69.8 percent. The difference is not significant, with 31.2 percent *p*-value. The percentage of each age group is also not significantly different between the two samples. The *p*-values range from 12.7 to 84.6 percent. No significant differences in individual disability categories were detected either.

Comparison of the two estimates of each score across the age groups is shown in table C-3. Among the 11 variables, only one variable, the WJLWSCORE (Letter-Word), had a significant difference, with a *p*-value of 3.2 percent. All other *p*-values were nonsignificant. In fact, most results were quite distant from the significance level of 5 percent, with the exception of the WJQCNSCORE (Quantitative Concepts: Number Series) variable, whose *p*-value (6.7 percent) was just over 5 percent.

When the data were analyzed by age group, no differences were significant. The ATTEN variables cannot be analyzed by age because they are already specific to a particular age. Results for these

[1] An Attention variable (Leiter-R) was constructed for each age group (3-, 4-, and 5-year-olds). The other eight variables were analyzed using age group as an independent variable.

three variables are presented in table C-3. Results for the other assessment-by-age variables are presented in table C-4.

The *t*-test results presented here, based on the combined-main comparison, do not indicate any systematic bias in the main sample estimates. Even for the case of the WJLWSCORE (Letter-Word) variable where the overall age comparison yielded a statistically significant result, no significant difference was detected for the comparisons performed within age groups. This provides strong evidence that the main sample is unbiased for the great majority of the assessment variables considered in this study.

Comparisons Between the Unweighted Main and Nonresponse Samples

In the comparison of unweighted means from the main and nonresponse samples, one of the eight across-age comparisons, WJAPSCORE, revealed a significant difference. Among the eight across-age comparisons and the18 by-age comparisons, three of the by-age results yielded a significant difference—ATTEN4, WJLWSCORE age 4, and WJAPSCORE age 4. These results are provided in detail in tables C-5 and C-6.

While these results in isolation might raise some concerns about possible bias, particularly in cohort B (age 4), it is important to remember that the analyses were unweighted, and weighting is designed in large part to remove such bias.

Grouped Overall Comparisons

If we look at the results from the viewpoint of overall comparisons, we can make even stronger statements about such comparisons than about individual comparisons. We performed chi-square tests to compare the overall distributions of age and disability. For the age distribution, the difference between the combined and main samples is strongly insignificant at a *p*-value of 79 percent. Similarly, the difference in the disability distribution in the two samples is insignificant with a *p*-value of 69 percent.

The Bonferroni inequality is often used to perform multiple comparisons. If we perform a family of *t*-tests to compare *k* pairs of means with a significance level *a* for each of the *k* individual *t*-tests, then

the overall significance level (type I error) of the family of *t*-tests is at most *ka*. For example, if $k = 10$ and the *ka* is set at 5 percent, then $a = 0.5$ percent.

If we apply this procedure to the result given in table C-3 with an overall significance level of 5 percent, we can say that the differences in the 11 pairs of means are collectively insignificant. We can say the same for the result presented in table C-4 even more forcefully. Furthermore, the Bonferroni procedure enables us to claim that unweighted comparisons shown in tables C-5 and C-6 are not significantly different either in terms of overall comparison.

Logistic Regression Results

Logistic regression analysis was used to examine whether participation status depends on the assessment scores. Dependency indicates possible bias in the score variables. Since the participation status variable is dichotomous, we can examine such dependency using logistic regression, where we use participation status as the dependent variable and assessment scores, disability category, and age as independent variables. By adding age and disability category in the regression models, the dependency is studied by subgroups of age and disability category.

Researchers tried to put as many score variables as possible together in a single model. However, since many score variables are age dependent, we had to limit the age groups permissible in each model. Furthermore, for some scores (e.g., IGDI Alliteration and Rhyming scores), although the tests shared a common age group, we could not estimate the regression coefficients when the tests were placed in a single model. This occurred because the score variables are defined not only based on age but also based on other differing restrictions, and this, in turn, created many cases with missing values on one of the score variables. Separate models were developed for those variables. In every model, assessment scores were insignificant predictors of participation status (see tables C-7-A through C-7-H).

Conclusions

Based on the three sets of analyses presented here, we conclude that there is little evidence of response bias in the PEELS main sample data. While a few individual comparisons of unweighted data

were significantly different, the comparisons of the weighted data were not, in particular when run by age. Furthermore, even those significantly different individual comparisons were not significant as a collective group. This suggests that the weights have eliminated bias in the unweighted main sample. In addition, none of the regressions indicated that assessment scores were significant predictors of participation status. Based on this evidence, we believe no systematic differences exist between the main and nonresponse bias study samples.

Table C-2. Main and combined sample comparison of sex, age, and disability categories

	Main		Combined		Difference on main and combined sample est					
Variable name	***N***	**est**	***N***	**est**	**est**	***S.E.***	**Lower C.L.**	**Upper C.L.**	***t*-test *p*-value**	**Significant?**
SEX_1	2,242	0.698	2,426	0.715	-0.018	0.017	-0.052	0.017	0.312	No
SEX_2	2,242	0.302	2,426	0.285	0.018	0.017	-0.017	0.052	0.312	No
AGE_3	2,242	0.182	2,426	0.194	-0.012	0.008	-0.027	0.003	0.127	No
AGE_4	2,242	0.368	2,426	0.358	0.010	0.013	-0.017	0.036	0.471	No
AGE_5	2,242	0.418	2,426	0.421	-0.003	0.013	-0.028	0.023	0.846	No
DDCAT_1	2,242	0.345	2,426	0.331	0.014	0.032	-0.050	0.077	0.666	No
DDCAT_2	2,242	0.505	2,426	0.491	0.014	0.028	-0.042	0.070	0.622	No
DDCAT_3	2,242	0.030	2,426	0.026	0.004	0.009	-0.014	0.021	0.690	No
DDCAT_4	2,242	0.035	2,426	0.051	-0.016	0.013	-0.042	0.010	0.229	No
DDCAT_5	2,242	0.046	2,426	0.059	-0.012	0.015	-0.043	0.018	0.426	No
DDCAT_6	2,242	0.006	2,426	0.006	0.001	0.003	-0.005	0.006	0.873	No
DDCAT_7	2,242	0.033	2,426	0.037	-0.004	0.010	-0.023	0.016	0.704	No

NOTE: *N* = number of cases in the full sample; est = estimate; *S.E.* = standard error; and C.L. = confidence level.

Table C-3. Main and combined sample comparison of the means of child assessment scores

	Main		Combined		Difference					
Variable name	***N***	**est**	***N***	**est**	**est**	***S.E.***	**Lower C.L.**	**Upper C.L.**	***t*-test *p*-value**	**Significant?**
WJQCCScore	807	7.37	863	7.30	0.06	0.28	-0.49	0.62	0.822	No
WJQCNSScore	807	3.55	863	3.16	0.40	0.22	-0.03	0.82	0.067	No
WJAPScore	2,242	10.38	2,426	10.10	0.29	0.24	-0.18	0.76	0.225	No
WJLWScore	2,239	7.93	2,423	7.50	0.43	0.20	0.04	0.82	0.032	No
IGDIPNScore	2,014	14.70	2,178	15.04	-0.34	0.32	-0.98	0.30	0.296	No
IGDIAScore	720	4.96	775	5.07	-0.11	0.34	-0.77	0.56	0.751	No
IGDIRScore	774	6.55	823	6.67	-0.12	0.49	-1.08	0.84	0.812	No
IGDISBScore	1,562	10.17	1,681	10.69	-0.52	0.52	-1.56	0.51	0.317	No
ATTEN3	533	9.15	586	8.96	0.18	0.31	-0.44	0.81	0.557	No
ATTEN4	859	9.07	930	8.70	0.37	0.25	-0.12	0.86	0.139	No
ATTEN5	776	9.30	826	9.59	-0.29	0.38	-1.05	0.47	0.445	No

NOTE: *N* = number of cases in the full sample; est = estimate; *S.E.* = standard error; and C.L. = confidence level.

Table C-4. Main and combined sample comparison of the means of child assessment scores, by age group

		Main		Combined		Difference					
Variable name	**Age group**	***N***	**est**	***N***	**est**	**est**	***S.E.***	**Lower C.L.**	**Upper C.L.**	***t*-test *p*-value**	**Significant?**
WJAPScore	Age 3	587	5.19	641	5.17	0.01	0.43	-0.83	0.86	0.973	No
	Age 4	848	9.11	922	8.68	0.43	0.41	-0.39	1.24	0.302	No
	Age 5	749	13.28	801	13.19	0.09	0.43	-0.75	0.94	0.825	No
WJLWScore	Age 3	586	4.10	640	4.24	-0.14	0.45	-1.03	0.75	0.756	No
	Age 4	846	5.98	920	5.56	0.42	0.27	-0.12	0.97	0.124	No
	Age 5	749	10.84	801	10.22	0.62	0.42	-0.21	1.45	0.142	No
IGDIPNScore	Age 3	477	10.95	519	11.56	-0.61	0.46	-1.51	0.29	0.183	No
	Age 4	773	13.81	842	13.41	0.40	0.51	-0.60	1.41	0.429	No
	Age 5	711	16.50	760	17.45	-0.94	0.59	-2.10	0.22	0.110	No
IGDIAScore	Age 4	254	3.48	279	3.26	0.22	0.32	-0.40	0.85	0.486	No
	Age 5	426	5.48	454	5.93	-0.45	0.62	-1.66	0.77	0.470	No
IGDIRScore	Age 4	302	5.11	320	4.97	0.14	0.27	-0.38	0.67	0.596	No
	Age 5	431	7.02	459	7.31	-0.30	0.73	-1.73	1.14	0.683	No
IGDISBScore	Age 4	785	7.30	852	7.60	-0.30	0.54	-1.37	0.77	0.579	No
	Age 5	719	12.06	768	12.61	-0.55	0.90	-2.32	1.23	0.545	No

NOTE: *N* = number of cases in the full sample; est = estimate; *S.E.* = standard error; and C.L. = confidence level.

Table C-5. Main and nonresponse sample comparison of the unweighted means of child assessment scores

	Main		Nonresponse		Difference of main and nonresponse sample est					
Variable name	***N***	**est**	***N***	**est**	**est**	***S.E.***	**Lower C.L.**	**Upper C.L.**	***t*-test *p*-value**	**Significant?**
M_WJQCCScore	807	7.24	56	7.16	0.08	0.450	-0.80	0.96	0.843	No
M_WJQCNSScore	807	3.34	56	2.91	0.43	0.413	-0.38	1.24	0.293	No
M_WJAPScore	2,242	9.68	184	8.50	1.18	0.457	0.29	2.08	0.010	No
M_WJLWScore	2,239	7.10	184	6.29	0.81	0.441	-0.06	1.67	0.064	No
M_IGDIPNScore	2,014	14.50	164	14.61	-0.11	0.509	-1.11	0.89	0.836	No
M_IGDIAScore	720	4.89	55	4.60	0.29	0.559	-0.81	1.39	0.556	No
M_IGDIRScore	774	6.42	49	6.35	0.07	0.680	-1.26	1.40	0.919	No
M_IGDISBScore	1,562	9.91	119	9.90	0.01	0.830	-1.62	1.64	0.989	No
M_ATTEN3	533	9.18	53	8.58	0.59	0.463	-0.32	1.50	0.283	No
M_ATTEN4	859	9.26	71	8.21	1.05	0.439	0.19	1.91	0.009	No
M_ATTEN5	776	9.50	53	9.40	0.10	0.561	-1.00	1.20	0.868	No

NOTE: *N* = number of cases in the full sample; est = estimate; *S.E.* = standard error; and C.L. = confidence level.

Table C-6. Main and nonresponse sample comparison of the unweighted means of child assessment scores, by age

		Main		Nonresponse		Difference					
Variable name	Age group	*N*	est	*N*	est	est	*S.E.*	Lower C.L.	Upper C.L.	*t*-test *p*-value	Significant?
M_WJAPScore	Age 3	587	5.16	54	5.17	-0.01	0.615	-1.21	1.20	0.992	No
	Age 4	848	9.31	74	7.65	1.66	0.610	0.47	2.86	0.009	No
	Age 5	749	13.14	52	12.83	0.31	0.780	-1.22	1.84	0.698	No
M-WJLWScore	Age 3	586	4.03	54	4.04	-0.01	0.539	-1.06	1.05	0.994	No
	Age 4	846	5.99	74	4.96	1.03	0.542	-0.04	2.09	0.035	No
	Age 5	749	10.20	52	10.12	0.08	0.900	-1.68	1.86	0.928	No
M_IGDIPNScore	Age 3	477	10.93	42	11.71	-0.78	0.869	-2.49	0.92	0.324	No
	Age 4	773	14.24	69	13.42	0.82	0.733	-0.62	2.26	0.282	No
	Age 5	711	16.82	49	18.43	-1.61	0.888	-3.35	0.14	0.069	No
M_IGDIAScore	Age 4	254	3.70	25	3.20	0.50	0.621	-0.72	1.72	0.289	No
	Age 5	426	5.41	28	5.75	-0.34	0.847	-2.00	1.32	0.676	No
M_IGDIRScore	Age 4	302	5.13	18	4.67	0.46	0.963	-1.43	2.36	0.587	No
	Age 5	431	7.05	28	7.43	-0.38	0.924	-2.19	1.44	0.706	No
M_IGDISBScore	Age 4	785	7.43	67	7.28	0.15	0.887	-1.59	1.89	0.850	No
	Age 5	719	12.06	49	12.78	-0.72	1.388	-3.44	2.01	0.617	No

NOTE: *N* = number of cases in the full sample; est = estimate; *S.E.* = standard error; C.L. = confidence level; DENOM = denominator

Table C-7-A. Logistic regression results for model of Woodcock-Johnson III Quantitative Concepts scores

HYPOTHESIS TESTING RESULTS: 863 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*	NOTE
OVERALL FIT	0.413	8	114	0.911	
WJQCCScore	1.914	1	121	0.169	
WJQCNSScore	2.436	1	121	0.121	
ddiscat2[7]	0.186	6	116	0.98	

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|	COMMENT
INTERCEPT	0.3	1.279	0.237	0.813	
WJQCCScore	-0.11	0.078	-1.384	0.169	
WJQCNSScore	0.13	0.082	1.561	0.121	
ddiscat2.1	-0.13	0.804	-0.158	0.874	
ddiscat2.2	0.06	0.922	0.06	0.952	
ddiscat2.3	0.55	34.731	0.016	0.987	Unstable Standard Error
ddiscat2.4	-0.5	1.351	-0.372	0.711	
ddiscat2.5	0.32	2.068	0.156	0.877	
ddiscat2.6	0.32	32.915	0.01	0.992	Unstable Standard Error

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-B. Logistic regression results for model of Woodcock-Johnson III Letter-Word and Applied Problems scores

HYPOTHESIS TESTING RESULTS: 2178 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*
OVERALL FIT	2.1327	11	111	0.0234
ddiscat2[7]	0.5529	6	116	0.7669
WJLWScore	2.6736	1	121	0.1046
WJAPScore	0.5406	1	121	0.4636
IGDIPNScore	1.4604	1	121	0.2292
CHLDAGE2[3]	0.5636	2	120	0.5707

ESTIMATES FULL REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|
INTERCEPT	-0.18	1.1105	-0.1638	0.8702
ddiscat2.1	0.16	0.6333	0.2587	0.7963
ddiscat2.2	0.29	0.6419	0.4593	0.6469
ddiscat2.3	-0.13	1.2519	-0.1015	0.9193
ddiscat2.4	-0.73	1.1091	-0.6582	0.5117
ddiscat2.5	-0.27	1	-0.2701	0.7875
ddiscat2.6	0.81	32.9739	0.0245	0.9805
WJLWScore	0.03	0.0208	1.6351	0.1046
WJAPScore	0.03	0.0361	0.7353	0.4636
IGDIPNScore	-0.05	0.0384	-1.2085	0.2292
CHLDAGE2.1	0.14	0.7784	0.1809	0.8568
CHLDAGE2.2	0.35	0.5473	0.635	0.5266

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-C. Logistic regression results for model of IGDI Alliteration scores

HYPOTHESIS TESTING RESULTS: 775 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*
OVERALL FIT	0.043	5	117	0.999
ddiscat3[4]	0.013	3	119	0.998
CHLDAGE2[2]	0.045	1	121	0.832
IGDIAScore	0.216	1	121	0.643

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|
INTERCEPT	0.25	1.955	0.126	0.9
ddiscat3.1	-0.17	1.831	-0.095	0.924
ddiscat3.2	-0.1	1.901	-0.054	0.957
ddiscat3.3	-0.14	2.352	-0.058	0.954
CHLDAGE2.1	-0.14	0.64	-0.213	0.832
IGDIAScore	-0.03	0.07	-0.465	0.643

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-D. Logistic regression results for model of IGDI Rhyming scores

HYPOTHESIS TESTING RESULTS: 823 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*	NOTE
OVERALL FIT	0.304	5	117	0.91	
ddiscat3[4]	0.201	3	119	0.896	
CHLDAGE2[2]	0.157	1	121	0.693	
IGDIRScore	0.195	1	121	0.66	

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|	COMMENT
INTERCEPT	0.59	1.47	0.399	0.691	
ddiscat3.1	-0.11	1.728	-0.066	0.948	
ddiscat3.2	-0.5	1.538	-0.325	0.746	
ddiscat3.3	-0.55	34.21	-0.016	0.987	Unstable Standard Error
CHLDAGE2.1	0.28	0.697	0.396	0.693	
IGDIRScore	-0.03	0.067	-0.442	0.66	

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-E. Logistic regression results for model of IGDI Segment Blending scores

HYPOTHESIS TESTING RESULTS: 1681 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*
OVERALL FIT	0.639	5	117	0.67
CHLDAGE2[2]	0.076	1	121	0.783
ddiscat3[4]	0.229	3	119	0.876
IGDISBScore	0.441	1	121	0.508

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|
INTERCEPT	-0.25	0.794	-0.315	0.753
CHLDAGE2.1	0.15	0.555	0.276	0.783
ddiscat3.1	0.28	0.873	0.32	0.749
ddiscat3.2	0.41	0.771	0.538	0.591
ddiscat3.3	1.28	1.716	0.746	0.457
IGDISBScore	-0.01	0.022	-0.664	0.508

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-F. Logistic regression results for model of Leiter-R Attention Sustained scores, age 3

HYPOTHESIS TESTING RESULTS: 586 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*
OVERALL				
FIT	0.631	4	118	0.641
ddiscat3[4]	0.515	3	119	0.672
ATTEN3	0.618	1	121	0.433

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|
INTERCEPT	-1.58	1.727	-0.915	0.362
ddiscat3.1	0.66	1.35	0.486	0.628
ddiscat3.2	1.19	1.513	0.785	0.434
ddiscat3.3	-0.37	2.354	-0.156	0.876
ATTEN3	0.06	0.073	0.786	0.433

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-G. Logistic regression results for model of Leiter-R Attention Sustained scores, age 4

HYPOTHESIS TESTING RESULTS: 929 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*
OVERALL				
FIT	1.005	4	118	0.408
ddiscat3[4]	0.426	3	119	0.734
ATTEN4	3.082	1	121	0.082

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|
INTERCEPT	-1.59	1.6	-0.991	0.324
ddiscat3.1	0.67	1.476	0.452	0.652
ddiscat3.2	1.1	1.477	0.746	0.457
ddiscat3.3	1.64	1.828	0.898	0.371
ATTEN4	0.1	0.059	1.756	0.082

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Table C-7-H. Logistic regression results for model of Leiter-R Attention Sustained scores, age 5

HYPOTHESIS TESTING RESULTS: 829 (UNWEIGHTED)

TEST	*F* VALUE	NUM. DF	DENOM. DF	PROB>*F*	NOTE
OVERALL					
FIT	0.139	4	118	0.967	
ddiscat3[4]	0.032	3	119	0.992	
ATTEN5	0.459	1	121	0.5	

ESTIMATED FULL SAMPLE REGRESSION COEFFICIENTS

PARAMETER	PARAMETER ESTIMATE	STANDARD ERROR OF ESTIMATE	TEST FOR H0: PARAMETER=0	PROB>|T|	COMMENT
INTERCEPT	0.19	1.104	0.176	0.861	
ddiscat3.1	0.16	0.971	0.169	0.866	
ddiscat3.2	0.27	1.022	0.261	0.795	
ddiscat3.3	0.57	34.718	0.016	0.987	Unstable Standard Error
ATTEN5	-0.04	0.065	-0.677	0.5	

NOTE: NUM = number; DF = degrees of freedom; HO = null hypothesis; DENOM = denominator

Appendix D: Standard Error Tables

NOTE: The tables in appendix D contain standard errors for the corresponding tables in the main body of the report. For example, table D-9 contains the standard errors for table 9.

Table D-9. Standard errors for percentage of young children who received preschool special education services whose parents reported that their children participated in various organized activities outside of school, by gender: School year 2005-06

	Total	Male	Female
Organized athletic activities	2.1	2.4	2.8
Organized clubs or recreational programs	1.0	1.4	2.0
Art or craft classes or lessons	1.0	1.3	1.5
Dance lessons	1.0	0.7	3.0
Performing arts programs (children's choirs, theater performances)	0.9	0.9	2.4
Music lessons	0.8	1.0	2.1
Drama classes	0.5	0.6	0.9

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-10. Standard errors for percentage of young children who received preschool special education services whose parents reported that their children participated in various organized activities outside of school, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Organized athletic activities	5.3	3.8	7.6	6.9	4.7	9.9	7.7	2.7	7.7
Organized clubs or recreational programs	3.8	3.2	6.6	4.1	‡	‡	3.0	1.7	7.8
Art or craft classes or lessons	4.2	2.6	4.4	4.8	4.6	9.1	3.3	1.9	3.9
Dance lessons	3.9	3.0	4.1	3.4	3.3	4.7	3.2	2.0	4.3
Performing arts programs (children's choirs, theater performances)	3.8	2.0	4.5	4.1	3.9	‡	‡	2.1	4.5
Music lessons	4.0	2.4	2.6	4.0	2.0	9.0	2.8	1.5	7.4
Drama classes	‡	‡	‡	4.5	‡	‡	‡	0.9	‡

‡ Reporting standards not met.

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (including deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-11. Standard errors for percentage of young children who received preschool special education services whose parents reported that their children participated in various organized activities outside of school, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Organized athletic activities	2.9	2.8	2.5
Organized clubs or recreational programs	2.0	2.2	1.4
Art or craft classes or lessons	2.3	1.4	1.9
Dance lessons	2.2	1.4	1.6
Performing arts programs (children's choirs, theater performances)	2.3	1.5	1.5
Music lessons	1.3	1.1	1.5
Drama classes	1.1	0.9	0.8

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-12. Standard errors for percentage of young children who received preschool special education services whose parents reported that their children participated in various group activities at least once a month, by household income: School year 2005-06

	Total	$20,000 or less	$20,001 to $40,000	More than $40,000
Sunday school/church child care	1.5	3.3	2.6	1.9
Lessons (swimming, art)	1.1	1.6	2.4	1.7
Story hour (at library)	1.0	3.0	2.5	1.2
Athletic teams	1.4	2.1	2.1	2.0
Play group	1.0	1.5	1.5	1.4
Children's organizations (scouts, brownies)	1.7	2.1	1.9	2.2
Other	0.3	‡	1.3	0.2

‡ Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-13. Standard errors for percentage of young children who received preschool special education services whose parents reported that their children participated in at least one organized activity outside of school, by parents' report of the safety of their neighborhood: School year 2005-06

	Total	Very safe	Somewhat safe	Not at all safe
Participated in at least one of the 14 activities	1.3	1.7	2.1	3.6
Did not participate in any of the 14 activities	1.3	1.7	2.1	3.6

*The result of the chi-square analysis was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-14. Standard errors for percentage of young children who received preschool special education services whose parents reported that their children participated in at least one organized activity outside of school, by parents' report of the way their transportation meets their needs: School year 2005-06

	Total	Excellent	Good	Fair/Poor
Participated in at least one of the 14 activities	1.3	1.7	1.7	4.3
Did not participate in any of the 14 activities	1.3	1.7	1.8	4.3

*The result of the chi-square analysis was significant at the $p < .05$ level.

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-15. Standard errors for percentage of young children who received preschool special education services whose families had taken them various places in the previous month, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Restaurant or fast food place	2.1	1.3	5.2	1.6	4.6	‡	2.4	0.8	3.6
Grocery store	2.8	1.2	4.1	2.7	2.5	‡	3.7	1.1	3.0
Shopping mall	3.1	1.5	4.7	1.7	4.0	‡	2.8	1.1	3.4
Church, synagogue, or place of worship	5.1	3.7	5.9	5.0	4.8	9.6	4.6	2.2	5.2
Public park or playground	4.0	2.7	7.2	6.0	5.3	10.3	6.3	2.0	7.0
Movies	5.5	3.9	7.9	5.7	5.9	10.3	4.5	2.5	8.4
Library	4.4	3.8	7.2	6.0	6.6	11.2	6.2	2.7	9.2
Vacations	4.9	2.8	4.5	4.5	5.9	10.7	5.2	2.7	9.1

‡ Reporting standards not met.

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (including deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-16. Standard errors for percentage of young children who received preschool special education services whose families had taken them various places in the previous month, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Restaurant or fast food place	1.8	1.1	0.5
Grocery store	1.6	1.1	0.7
Shopping mall	1.4	1.0	0.8
Church, synagogue, or place of worship	4.4	1.9	1.3
Public park or playground	2.8	2.1	1.8
Movies	2.3	2.4	1.7
Library	4.0	3.2	2.0
Vacations	3.3	2.4	2.1

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-17. Standard errors for percentage of young children who received preschool special education services whose parents felt it was easier, just as easy, a little harder, or much harder to take them along when they did things like go to the store, by gender: School year 2005-06

	Total	Male	Female
Easier to take places than other children	1.1	1.4	1.9
Just as easy to take places	1.6	1.9	2.2
A little harder to take places	1.6	1.7	2.3
Much harder to take places	0.8	1.0	1.2

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-18. Standard errors for percentage of young children who received preschool special education services whose parents felt it was easier, just as easy, a little harder, or much harder to take them along when they did things like go to the store, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Easier to take places than other children	2.4	2.6	‡	3.9	3.3	‡	3.6	1.8	4.8
Just as easy to take places	4.0	3.2	‡	4.3	6.0	‡	5.1	2.6	7.7
A little harder to take places	5.3	2.9	9.0	4.7	5.1	12.3	8.1	2.2	7.8
Much harder to take places	3.4	2.9	7.1	3.1	4.4	11.1	4.2	1.2	5.0

‡ Reporting standards not met.

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (including deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-19. Standard errors for percentage of young children who received preschool special education services whose parents felt it was easier, just as easy, a little harder, or much harder to take them along when they did things like go to the store, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Easier to take places than other children	2.6	1.7	1.3
Just as easy to take places	3.7	2.7	2.4
A little harder to take places	3.6	2.5	1.9
Much harder to take places	2.6	1.2	1.0

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-20. Standard errors for percentage of young children who received preschool special education services whose parents reported having difficulty going various places because of their children's behavior, disabilities, or special needs, by gender: School year 2005-06

	Total	Male	Female
Shopping mall	1.2	1.5	2.2
Church, synagogue, or place of worship	1.0	1.3	1.9
Grocery store	0.9	1.2	1.5
Library	1.0	1.3	1.5
Restaurant or fast food place	1.1	1.4	1.5
Movies	1.0	1.3	1.5
Vacations	0.9	1.2	1.1
Public park or playground	0.7	0.9	1.4

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-21. Standard errors for percentage of young children who received preschool special education services whose parents reported having difficulty going various places because of their children's behavior, disabilities, or special needs, by disability: School year 2005-06

	AU	DD	ED	LD	MR	OI	OHI	SLI	LI
Shopping mall	4.1	3.2	7.3	4.8	5.6	11.0	7.3	2.1	8.2
Church, synagogue, or place of worship	4.2	2.8	7.1	3.9	5.2	10.3	8.0	1.6	9.3
Grocery store	4.2	3.5	7.5	3.4	5.2	10.4	5.7	1.8	9.1
Library	4.6	3.9	7.6	4.3	5.9	10.2	4.9	1.5	8.1
Restaurant or fast food place	3.8	3.4	7.4	3.6	5.0	10.8	6.6	1.6	8.1
Movies	5.1	3.6	6.2	4.0	5.6	10.0	6.0	1.5	9.0
Vacations	4.0	2.8	6.8	3.7	4.9	10.3	4.8	1.3	8.1
Public park or playground	3.8	1.7	5.4	1.5	4.6	11.2	4.7	1.1	8.2

NOTE: AU = Autism; DD = Developmental delay; ED = Emotional disturbance; LD = Learning disability; MR = Mental retardation; OI = Orthopedic impairment; OHI = Other health impairment; SLI = Speech or language impairment; LI = Low incidence (including deaf/blindness, deafness, hearing impairment, traumatic brain injury, visual impairment, and other disabilities identified by parents but not specified in IDEA (e.g., comprehension problems, hand-eye coordination)).

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-22. Standard errors for percentage of young children who received preschool special education services whose parents reported having difficulty going various places because of their children's behavior, disabilities, or special needs, by household income: School year 2005-06

	$20,000 or less	$20,001 to $40,000	More than $40,000
Shopping mall	2.9	2.6	1.7
Church, synagogue, or place of worship	2.3	2.3	1.4
Grocery store	3.2	1.9	1.5
Library	2.9	2.3	1.2
Restaurant or fast food place	3.1	1.9	1.1
Movies	3.0	2.5	1.1
Vacations	2.5	2.0	1.3
Public park or playground	2.2	1.6	1.0

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Parent interview," previously unpublished tabulation (February 2007).

Table D-23. Standard errors for percentage of young children who received preschool and kindergarten special education services and primary type of classroom setting during their kindergarten year

	Regular education classroom	Special education setting
Total	2.1	2.1
District size		
Small	4.9	4.9
Medium	3.7	3.7
Large	5.0	5.0
Very large	1.9	1.9
Metropolitan status		
Urban	3.8	3.8
Suburban	3.5	3.5
Rural	3.1	3.1
District wealth		
High-wealth	3.4	3.4
Medium-wealth	6.0	6.0
Low-wealth	3.9	3.9
Very low-wealth	3.2	3.2

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-24. Standard errors for mean number of hours per week young children who received preschool and kindergarten special education services spent in regular or special education settings during their kindergarten year

	Regular education classroom	Special education setting
Total	0.7	0.5
District size		
Small	1.3	1.2
Medium	1.7	1.1
Large	1.3	1.2
Very large	1.2	0.4
Metropolitan status		
Urban	1.1	1.1
Suburban	1.1	0.7
Rural	1.1	0.8
District wealth		
High-wealth	1.3	0.8
Medium-wealth	1.5	1.2
Low-wealth	1.8	1.2
Very low-wealth	0.8	1.0

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-25. Standard errors for percentage of young children who received preschool and kindergarten special education services and the type of modification to curriculum materials received during their kindergarten year

	Regular education grade-level materials are used without modification	Some modifications in regular education materials have been made	Substantial modifications in regular curriculum materials have been made	Specialized curriculum or materials are used
Total	1.9	1.6	1.2	1.2
District size				
Small	2.9	3.9	2.7	2.8
Medium	5.3	3.5	4.6	4.7
Large	4.4	3.4	2.4	1.8
Very large	3.7	4.1	2.5	2.5
Metropolitan status				
Urban	2.5	3.0	2.9	2.5
Suburban	2.6	2.3	1.6	1.6
Rural	5.5	3.8	1.7	3.4
District wealth				
High-wealth	2.3	3.1	2.0	1.7
Medium-wealth	5.1	3.5	1.7	2.4
Low-wealth	4.3	3.1	2.6	2.8
Very low-wealth	2.5	4.3	2.8	3.2

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-26. Standard errors for percentage of young children who received preschool and kindergarten special education services and who received different accommodations, modifications, and learning aids during their kindergarten year

	Total
Additional time to complete assignments	2.2
Slower paced instruction or modified instruction	2.1
Modified assignments	2.0
Physical adaptations (e.g., preferential seating, special desks)	2.1
Modified grading standards	1.7
Computer software	1.1
Books on tape	1.0
Communication aids and visual cues	1.3
Computer hardware adapted for child's unique needs	0.8
Use of spell checker	0.0
Other	0.5

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-27. Standard errors for mean percentage of time spent in different activities during kindergarten among young children who received preschool special education services

	Instructional or therapy services outside classroom	Adult-directed whole-class activities	Adult-directed small-group activities	Adult-directed individual activities	Child-selected activities
Total	0.3	1.0	0.7	0.6	0.4
District size					
Small	0.5	1.5	1.6	0.7	0.7
Medium	2.0	3.2	2.3	3.0	1.3
Large	0.4	1.3	1.3	1.1	0.6
Very large	1.0	1.9	1.5	1.4	0.7
Metropolitan status					
Urban	0.5	1.4	1.0	1.1	0.7
Suburban	0.7	1.1	1.4	0.9	0.5
Rural	0.9	2.4	1.3	1.4	0.9
District wealth					
High-wealth	0.8	1.3	1.5	1.2	0.6
Medium-wealth	0.6	1.4	1.6	0.9	0.7
Low-wealth	0.6	2.6	1.3	1.4	0.9
Very low-wealth	0.8	1.1	1.1	0.8	0.9

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-28. Standard errors for percentage of young children who received preschool special education services and the activities they most frequently engaged in during their kindergarten year

	Total	Children in special education	Children no longer in special education
Alphabet and language materials	1.3	1.4	2.8
Blocks, Legos®, K'nex®, and other building toys	1.4	1.4	2.4
Paper, coloring books, crayons, pencils and pens	1.2	1.6	2.7
Arts and crafts projects and materials, clay or play-doh	0.8	1.0	2.1
Children's books and magazines	0.8	0.9	1.6
Playhouse, toy kitchen, dishes, plastic food	1.0	1.2	1.3
Computer and software	1.0	1.0	2.1
Vehicles and work machines	0.8	0.8	2.6
Counting and number materials	0.8	1.1	0.6
Commercial educational toys	0.4	0.5	1.1

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-29. Standard errors for mean number of children with and without Individualized Education Programs (IEPs) and percentage of children without IEPs within kindergarten classrooms for young children who received preschool and kindergarten special education services

	Number of children with IEPs	Number of children without IEPs	Percentage of children without IEPs
Total	0.1	0.3	0.0
District size			
Small	0.2	0.5	0.0
Medium	0.4	1.4	0.0
Large	0.2	0.6	0.0
Very large	0.4	0.5	0.0
Metropolitan status			
Urban	0.2	0.5	0.0
Suburban	0.2	0.4	0.0
Rural	0.3	0.6	0.0
District wealth			
High-wealth	0.1	0.7	0.0
Medium-wealth	0.3	0.3	0.0
Low-wealth	0.2	0.7	0.0
Very low-wealth	0.4	0.5	0.0

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Table D-30. Standard errors for percentage of young children who received preschool and kindergarten special education services and methods used to support social interaction with nondisabled peers in kindergarten

	Total
We structure play and task situations so that they require interaction between this child and children without disabilities	1.6
We prompt and reinforce this child for initiating and maintaining interactions with children without disabilities	1.6
We prompt and reinforce the children without disabilities for initiating and maintaining interactions with this child	1.8
We assign children without disabilities to be "helpers" or "buddies" to this child	1.7
We present a specific disability awareness program during group times	1.9

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Appendix E: Standard Error Tables for Figures

EDITOR'S NOTE: The table in appendix E contains standard errors for figures 2-4 in the main body of the report.

Table E-1. Standard errors for percentage of young children who received preschool special education services and type of kindergarten program attended

	Full-day kindergarten	Half-day kindergarten
Total	3.3	3.3
District size		
Small	4.5	4.5
Medium	11.1	11.1
Large	5.3	5.3
Very large	5.4	5.4
Metropolitan status		
Urban	3.5	3.5
Suburban	5.5	5.5
Rural	4.3	4.3
District wealth		
High-wealth	7.1	7.1
Medium-wealth	4.2	4.2
Low-wealth	4.6	4.6
Very low-wealth	4.2	4.2

SOURCE: U.S. Department of Education, National Center for Special Education Research, Pre-Elementary Education Longitudinal Study (PEELS), "Kindergarten Teacher Questionnaire," previously unpublished tabulation (March 2008).

Appendix F: Analysis Variables Used Throughout Report

Variable	Source	Response codes
CHILD BACKGROUND AND FAMILY CHARACTERISTICS		
Child's gender	Parent interview	1=Male 2=Female
Household income	Parent interview	1=$20,000 or less 2=$20,001-$40,000 3=More than $40,000
Disability category	Teacher questionnaire	1=Autism 2=Developmental delay 3=Emotional disturbance 4=Learning disability 5=Mental retardation 6=Orthopedic impairment 7=Other health impairment 8=Speech or language impairment 9=Low incidence
How safe it is for children to play outside during the day in family's neighborhood	Parent interview	1=Not at all safe 2=Somewhat safe 3=Very safe
How well family's transportation met their needs	Parent interview	1=Excellent 2=Good 3=Fair or poor
DISTRICT CHARACTERISTICS		
District wealth (Percent of district's children living in poverty)	QED sampling frame	1=High-wealth (0-12%) 2=Medium-wealth (13-34%) 3=Low-wealth (35-40%) 4=Very low-wealth (>40%)
District size (Number of schools within the district)	QED sampling frame	1=Small (41 or less) 2=Medium (42-117) 3=Large (118-390) 4=Very large (391 or more)
Metropolitan status	QED sampling frame	1=Urban (large or mid-sized central city) 2=Suburban (urban fringe of a large or mid-sized city, large or small town) 3=Rural (population of less than 2,500)
EXTRACURRICULAR ACTIVTIES		
Whether or not child has ever participated in dance lessons outside of school	Parent interview	1=Yes 2=No
Whether or not child has ever participated in organized athletic activities outside of school	Parent interview	1=Yes 2=No
Whether or not child has ever participated in organized clubs outside of school	Parent interview	1=Yes 2=No

Variable	Source	Response codes
Whether or not child has ever participated in music lessons outside of school	Parent interview	1=Yes 2=No
Whether or not child has ever participated in drama classes outside of school	Parent interview	1=Yes 2=No
Whether or not child has ever participated in arts or crafts classes or lessons outside of school	Parent interview	1=Yes 2=No
Whether or not child has ever participated in performing arts programs outside of school	Parent interview	1=Yes 2=No
Whether or not child participated in any group activities at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in a play group at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in a story hour (at library) at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in Sunday school/church child care at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in lessons (swimming, art) at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in athletic teams at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in children's organizations (scouts, brownies) at least once a month	Parent interview	1=Yes 2=No
Whether or not child participated in other group activities at least once a month	Parent interview	1=Yes 2=No
Average number of activities children participated in	Parent interview	Continuous
Whether or not children participated in at least one activity outside of school	Parent interview	1=Yes 2=No

Variable	Source	Response codes
Whether or not anyone in the family has gone at least one of eight places with the child in the past month (e.g., grocery store, library, shopping mall)	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to a grocery store with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to a shopping mall with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to a restaurant or fast food place with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to a public park or playground with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to a church, synagogue, or place of worship with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to a library with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone to the movies with the child in the past month	Parent interview	1=Yes 2=No
Whether or not anyone in the family has gone on a vacation with the child in the past month	Parent interview	1=Yes 2=No
Compared to other children, how easy it was for parents to take their children with them when they did things like go to the store or keep an appointment	Parent interview	1=Easier to take places than other children 2=Just as easy to take places 3=A little harder to take places 4=Much harder to take places
Whether or not the family has difficulty going to a grocery store with the child because of the child's disability	Parent interview	1=Yes 2=No
Whether or not the family has difficulty going to a shopping mall with the child because of the child's disability	Parent interview	1=Yes 2=No

Variable	Source	Response codes
Whether or not the family has difficulty going to a restaurant or fast food place with the child because of the child's disability	Parent interview	1=Yes 2=No
Whether or not the family has difficulty going to a public park or playground with the child because of the child's disability	Parent interview	1=Yes 2=No
Whether or not the family has difficulty going to a church, synagogue, or place of worship with the child because of the child's disability	Parent interview	1=Yes 2=No
Whether or not the family has difficulty going to the library with the child because of the child's disability	Parent interview	1=Yes 2=No
Whether or not the family has difficulty going to the movies with the child because of the child's disability	Parent interview	1=Yes 2=No
Whether or not the family has difficulty going on vacations with the child because of the child's disability	Parent interview	1=Yes 2=No
KINDERGARTEN CLASSROOM EXPERIENCES		
Average age of children by spring of kindergarten year	Teacher questionnaire	Continuous
Whether or not child had an IEP by kindergarten	Teacher questionnaire	0=Child has an IEP by kindergarten 1=Child no longer has an IEP by kindergarten
Child's main education setting	Teacher questionnaire	1=Regular education classroom 2=Special education setting
Average number of hours per week children who received special education services spent in a regular education classroom	Teacher questionnaire	Continuous
Average number of hours per week children who received special education services spent in a special education setting	Teacher questionnaire	Continuous
Whether children attended full-day or half-day kindergarten	Parent interview	1=Full-day 2=Half-day

Variable	Source	Response codes
Level of modification of curriculum materials for the child	Teacher questionnaire	1=Regular education grade-level materials are used without modification 2=Some modifications in regular education materials have been made 3=Substantial modifications in regular curriculum materials have been made 4=Specialized curriculum materials are used
Whether or not additional time to complete assignments was provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not slower paced instruction or modified instruction was provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not modified assignments were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not physical adaptations were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not modified grading standards were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not computer software was provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not books on tape were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not communication aids and visual cues were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not computer hardware adapted for the child's unique needs were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Whether or not use of spell checker was provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes

Variable	Source	Response codes
Whether or not other learning aids were provided to the child as part of his/her IEP or 504 plan	Teacher questionnaire	0=No 1=Yes
Percentage of the day the child spent in instructional or therapy service outside of the classroom	Teacher questionnaire	Continuous
Percentage of the day the child spent in adult-directed whole-class activities	Teacher questionnaire	Continuous
Percentage of the day the child spent in adult-directed small-group activities	Teacher questionnaire	Continuous
Percentage of the day the child spent in adult-directed individual activities	Teacher questionnaire	Continuous
Percentage of the day the child spent in child-selected activities	Teacher questionnaire	Continuous
Activity child engaged in most often in the classroom	Teacher questionnaire	1=Arts and crafts projects and materials, clay, or play- doh 2=Blocks, Legos®, K'nex®, other building toys 4=Playhouse, toy kitchen, dishes, plastic food 6=Children's books and magazines 8=Paper, coloring books, crayons, pencils and pens 10=Computer and software 14=Vehicles and work machines 18=Commercial education toys 28=Counting and number materials 29=Alphabet and language materials
Average number of children with IEPs in the child's classroom	Teacher questionnaire	Continuous
Average number of children without IEPs in the child's classroom	Teacher questionnaire	Continuous
Percentage of students in child's classroom without IEPs	Teacher questionnaire	Continuous
Whether or not the program structures play and task situations so that they require interaction between this child and children without disabilities	Teacher questionnaire	1=Yes 2=No
Whether or not program prompts and reinforces this child for initiating and maintaining interactions with children without disabilities	Teacher questionnaire	1=Yes 2=No

Variable	Source	Response codes
Whether or not program prompts and reinforces the children without disabilities for initiating and maintaining interactions with this child	Teacher questionnaire	1=Yes 2=No
Whether or not program assigns children without disabilities to be “helpers” or “buddies” to this child	Teacher questionnaire	1=Yes 2=No
Whether or not program presents a specific disability awareness program during group times	Teacher questionnaire	1=Yes 2=No

Appendix G: Final Augmented LEA Sample Size

Table G-1. Final augmented LEA sample size by district size and region

	Size				
Region	Total	Very large	Large	Medium	Small
Total	232	39	42	51	100
Northeast	66	9	13	14	30
Southeast	56	16	10	16	14
Central	63	3	8	15	37
West/Southwest	47	11	11	6	19

Table G-2. Final augmented LEA sample size by district size and wealth

	Size				
District wealth	Total	Very large	Large	Medium	Small
Total	232	39	42	51	100
High	67	4	10	15	38
Medium	67	8	14	14	31
Low	59	12	9	15	23
Very low	39	15	9	7	8

Table G-3. Final augmented LEA sample size by district region and wealth

	Region				
District wealth	Total	Northeast	Southeast	Central	West/Southwest
Total	232	66	56	63	47
High	67	31	5	19	12
Medium	67	13	13	29	12
Low	59	11	26	12	10
Very low	39	11	12	3	13

Table G-4. Participating LEA sample size by three stratification variables

	Size			
Total	Very large	Large	Medium	Small
223	39	42	51	91
	Region			
	Northeast	Southeast	Central	West/Southwest
223	63	55	59	46
	District wealth			
	High	Medium	Low	Very low
223	62	65	57	39