1. Assessing the Achievements of Students with Disabilities during Elementary and Middle School

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Recent reforms in the American education system, codified in *The No Child Left Behind Act of 2001* (NCLB, P.L. 107-110), emphasize the accountability of schools for the academic performance of all their students. NCLB requires states to implement statewide accountability systems that are based on challenging academic standards in core areas, to test all students in grades 3 through 8 annually, and to publish statewide progress objectives annually to ensure that all groups of students reach academic proficiency within 12 years.

This emphasis on improved academic performance is consistent with the intention of federal legislation that guides the provision of special education services for children with disabilities—the Individuals with Disabilities Education Act Amendments of 1997 (IDEA '97). That act states: "Improving educational results for children with disabilities is an essential element of our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities" [Sec. 601(c)(1)]. The importance of academic performance is not the ultimate outcome by which the education of students with disabilities is to be assessed, however. The intention of the free appropriate public education guaranteed by IDEA to children with disabilities is to "prepare them for employment and independent living" [Sec. 601(d)(1)(A)].

This purpose suggests the multidimensional nature of the achievements or outcomes desired for children with disabilities. In fact, the National Center on Educational Outcomes (1993) has articulated six primary outcome domains relevant to students with disabilities in a "framework for educational accountability." Yet, specifying desired outcomes is only a first step toward an effective accountability system; only when data are available on how students with disabilities fare across multiple outcome domains can America's education system actually be accountable for the academic performance and postschool preparation of its students.

The Office of Special Education Programs (OSEP) of the U. S. Department of Education has commissioned a 6-year study that is generating the information needed to assess the achievements of students with disabilities in their elementary and middle school years in multiple domains. The Special Education Elementary Longitudinal Study (SEELS) is documenting the characteristics, experiences, and outcomes of a nationally representative sample of more than 11,000 students who were ages 6 through 12 and were receiving special education services in grades 1 through 6 when the study began in 2000. SEELS findings are generalizable to students with disabilities nationally, and to students

in each of the federal special education disability categories in use for students in the SEELS age range.[1]

This rich source of information will support a series of reports that will emerge over the life of SEELS. This report considers the following questions concerning elementary and middle school students with disabilities:[2]

- What are the achievements of students with disabilities in key outcome domains?
- How do achievements vary for students with different kinds of disabilities?
- What individual, household, and school factors are related to more positive outcomes for students with disabilities?

Student Outcomes

SEELS is able to address these questions with measures of outcomes that span multiple domains, including:

- **School engagement**—attending school and being actively engaged in learning activities there.
- **Academic performance**—gaining proficiency in reading, in mathematics, and in making progress in the curriculum.
- **Social adjustment**—exhibiting social skills, being socially integrated, and avoiding negative behavior.
- **Independence**—demonstrating skills that support emerging independence and assuming responsibilities at home.

Several sources of information have been used to measure outcomes in these domains and factors related to them:

- **Parents.** In telephone interviews conducted in 2000, parents reported on such topics as the activities of students outside of school (e.g., getting together with friends, extracurricular activities), students' functioning (e.g., social skills, self-care skills), household characteristics (e.g., income), and their expectations for their children's future.
- **Students.** In-person assessments were conducted with students during the 2000-01 school year. These assessments collected data from students, including the scores of tests administered to the students in reading, mathematics, phonemic awareness, and oral reading fluency, as well as

[1] Please see Appendix A for details about the SEELS design, sample, analysis approach, and measurement issues. Additional information about SEELS is available at www.seels.net.

[2] Similar questions are addressed for secondary-school-age students with disabilities in Wagner, Marder, Blackorby, Cameto, Newman, Levine, et al. (2003).

information regarding students' academic and social self-concept and attitudes toward school.

- **School staff best able to describe students' overall school programs and performance.** A mail questionnaire administered in the 2000-01 school year generated information on absenteeism; tested grade levels in reading and mathematics; suspensions, expulsions, and disciplinary actions; course-taking; grades; and accommodations and services provided to students as part of their school programs.
- **Teachers of language arts classes.** A mail questionnaire administered in the 2000-01 school year and completed by students' primary language arts teacher collected information on instructional goals and methods, accommodations, and student performance and behavior in such classes.
- **School staff able to describe students' schools.** A mail questionnaire administered in the 2000-01 school year collected information on the characteristics of schools attended by students with disabilities, including their student bodies, resources, and policies.
- **School districts.** The primary disability classification of each student was obtained from the school district rosters from which students were sampled.

The synthesis of these data sources has produced information to measure the following outcomes within each domain:

School Engagement

SEELS examines both the subjective and the behavioral dimensions of school engagement for students with disabilities, including:

- **Students' feelings toward school.** Students who have positive feelings about school are more likely than other students to attend school and to participate fully in their educational experience. To measure student's feelings about school, parents were asked to indicate their children's level of agreement with the statement, "[Student's name] enjoys school."
- **Absenteeism.** Absenteeism from school can be problematic for both students and teachers. Students miss exposure to instructional materials and activities, and frequent or prolonged absences may jeopardize their ability to keep up with their class. Having students absent from school also requires that teachers repeat information and schedule makeup activities for absent students. Respondents to the school program survey reported the number of days students were absent in February 2001. That value was multiplied by nine for the average days absent in a school year. Suspensions and expulsions were excluded from this calculation.
- **Engaging in classroom activities.** Although attendance is necessary for reaping the benefits of school, it is by no means sufficient. Students make the greatest gains when they work hard and consistently, and when they participate actively in the learning enterprise. Teachers were asked to report

how often students do the following: complete homework on time, take part in group discussions, perform difficult tasks independently, and persevere until completing a difficult task. Responses were summed to create a scale that ranges from 4 (does all activities "rarely") to 16 (does all activities "almost always").

- **Motivation for schooling.** Students who are motivated to attend school may be more likely to continue attending school and to obtain a diploma. Students responded to a series of questions during the direct assessment from the School Attitude Measure (Wick, 1990) that included responses to statements such as: "School is the best place for me to learn," "I look forward to each new school year," and "I am glad that I have many more years of school."

Academic Performance

- **Standardized test scores.** Students' performance in reading and mathematics was measured through the SEELS in-person direct assessment in the 2000-01 school year. The assessment contained research editions of four subtests of the Woodcock Johnson III (WJIII) assessment (Woodcock, McGrew, & Mather, 2001), including letter-word identification, passage comprehension, mathematics calculation, and mathematics problem-solving. WJIII allows for direct comparisons with a general population norm group assessed in 2000.
- **Grades.** Parents were asked to report students' overall grades on a 9-point scale (e.g., mostly As, mostly As and Bs, mostly Bs). For students whose parents were not interviewed, teachers' reports of the grades they gave students in their language arts classes were used (recorded on the same 9-point scale). Only students who received these kinds of letter grades (as opposed to grades such as "excellent" or "passing") are included in analyses of grades as a dependent measure.
- **Discrepancy between actual grade level and tested grade level in reading and in mathematics.** Over time, students who do not learn effectively fall increasingly behind in their academic skills. To assess the extent to which students with disabilities are keeping up with the academic performance expectations for their grade level, school staff were asked to report the most recent year in which the reading and mathematics abilities of students were tested and the grade level equivalent of their abilities. Each student's actual grade level in that year then was subtracted from the tested grade level in the test year. A negative number indicates that students' abilities lag behind their actual grade level, and a positive number indicates that their abilities are more advanced than those typical for their grade level.
- **Grade retention.** A fundamental measure of academic achievement is meeting the performance expectations for a given grade level and being promoted to the next grade level at the end of the school year. Students who do not meet expectations repeat a grade, an experience that is becoming more

common as policies that prohibit "social promotion" proliferate (Smink, 2001). Parents were asked whether their children with disabilities had ever been held back a grade.

Social Adjustment

- **Social skills.** Students with disabilities differ markedly in their ability to relate to others (Cadwallader, Cameto, Blackorby, Giacalone, & Wagner, 2002), an ability that is facilitated by a variety of social skills that range from starting conversations readily and being comfortable in social situations to controlling one's temper. The social skills of students with disabilities were assessed by asking parents questions about the frequency with which students exhibit nine aspects of social interactions, which were drawn from the Social Skills Rating System, Parent Form (Gresham & Elliott, 1990a).[3] A summative scale for the items ranges from 9 ("never" exhibits any of the skills) to 27 (exhibits all of the skills "always").
- **Classroom behavior.** To elicit information about students' classroom behavior from the schools' point of view, SEELS asked teachers or school staff how well students "get along with other students," "follow directions," and "control behavior to act appropriately in class." Responses were summed to create a scale with values from 3 (all behaviors done "not at all well") to 12 (all behaviors done "very well").
- **Getting along with teachers and students at school.** Parents were asked to report how well they think students get along with both teachers and other students at school; responses on a 4-point scale range from "very well" to "not at all well."
- **Problem behaviors at school.** School staff were asked whether during the current school year students with disabilities had been suspended, expelled, or involved in any other type of disciplinary action, such as a referral to the office or detention.
- **Social integration.** Parents reported on students' involvement with peers in organized extracurricular activities, as well as informal friendships. They indicated whether students participate in any school activity outside of class, such as a sports team, band, or a school club, or in any out-of-school group activity, such as scouting, a church or temple students' group, or a nonschool sports team. Parents also were asked how many days a week their children with disabilities usually get together with friends outside of school and organized activities or groups.

[3] Please see Chapter 5 for the specific social skills included in this scale.

Independence

Skills That Support Independence

- **Management of self-care activities.** Although most students who receive special education services have mastered the skills involved in such basic self-care functions as toileting and feeding themselves, those functions continue to challenge some students. Parents' reports of the ability of students to perform these functions constitute a self-care skills scale that ranges from 2 (performs the two tasks "not at all well") to 8 (performs both tasks "very well").

- **Functional cognitive skills.** Performing such functional skills as telling time, reading signs, counting change, and using the telephone presents challenges to many students with disabilities, including those with cognitive impairments and some kinds of learning disabilities. Parents' reports on the ability of students to perform these functions constitute a functional cognitive skills scale that ranges from 4 (performs all of the tasks "not at all well") to 16 (performs all tasks "very well"). These skills are referred to as "functional cognitive skills" because they require the cognitive ability to read, to count, and to calculate. However, they also require sensory and motor skills (e.g., the ability to see signs, to manipulate a telephone). Consequently, a high score indicates high functioning in all of these areas, but a low score can result from a deficit in the cognitive, sensory, and/or motor domains.

- **Mobility.** Getting around outside the home is an important marker of independence. The ability of students to navigate the nearby environment outside their homes was assessed using parents' ratings of how well students are able to "get to places outside the home, like to school, to a nearby store or park, or to a neighbor's house." Because getting around independently can be especially problematic for students with visual impairments, information on mobility skills was collected for all students identified as having those impairments. School staff were asked to report how well students with visual impairments are able to perform 10 mobility activities (e.g., travel indoors using remotely learned routes, execute a route indicated by a verbal set of directions). A composite mobility performance score was calculated by summing these responses, which ranges from 10 to 30.

- **Self-determination and locus of control.** The road to independence for children and adolescents also includes the development of self-determination and locus of control skills, such as persisting with tasks to completion or believing in one's ability to advocate for oneself and influence one's success. To assess persistence, parents and teachers[4] were asked how often students "keep working at something until finished, even if it takes a long time." Responses included "very often," "sometimes," and "never." Self-advocacy

[4] In measuring persistence, data from teachers has been used when a parent report was missing.

is assessed by school staff ratings on a 4-point scale of how well a student can "ask for what he/she needs to do his or her best in class." Locus of control scores are derived from the School Attitude Measure (Wick, 1990), which is the sum of items related to the cause of bad grades, how things turn out at school, whether "a student like me" can get good grades, whether the student has control over grades, and whether the student knows how to be successful in school. Students rated themselves on these self-advocacy skills on a 4-point scale that ranges from "never agree" to "always agree."

Assumption of Responsibilities for Daily Living

- **Assumption of personal responsibilities in the household.** As students mature, they often are expected to become more responsible for their own support within the household, such as fixing their own breakfasts or lunches, straightening up their rooms or living areas, and doing their own laundry. In addition, most students begin to function more independently outside of the home (e.g., by shopping for personal items). Parents were asked how often students fix their own breakfasts or lunches, straighten up their living spaces, do laundry, and buy a few things at a store when they are needed. Responses were summed to create a scale that ranges from 4 (does all activities "never") to 16 (does all activities "always").

Analysis Methods

A two-pronged analysis approach has been used to address the research questions related to students' outcomes. The first step is to present descriptive findings for the indicators within each outcome domain for students with disabilities as a whole. When possible, outcomes also are compared with those for the general population of students. The relationships among the indicators within an outcome domain then are considered to provide a deeper understanding of the multiple dimensions of outcomes within each domain. The descriptive analysis concludes by examining outcomes for students who differ in their primary disability classification.

Analyses then address factors that are related to differences in selected outcomes. Multivariate analysis techniques (i.e., linear and logistic regression) are used to identify the independent relationships of various factors to outcomes. Such analyses estimate the magnitude and direction of relationships for numerous explanatory factors, statistically holding constant the other factors in the analysis. The factors included in these multivariate analyses are drawn from the SEELS conceptual framework.

Readers should remember the following issues when interpreting the findings in this report:

- **Weighting of descriptive results.** All of the descriptive statistics presented in this report are weighted estimates of the national population of students

receiving special education in the SEELS age group, as well as in each disability category individually.

- **Standard errors.** For each mean and percentage in this report, the standard error (presented in Appendix B) indicates the precision of the estimate. For example, a variable with a weighted estimated value of 50% and a standard error of 2 means that the value for the total population would, with 95% confidence, lie between 48% and 52% (plus or minus 2 percentage points of 50%), if it had been measured,. Thus, smaller standard errors allow for greater confidence to be placed in the estimate, whereas larger ones require more caution.
- **Small samples.** Although SEELS data are weighted to represent the population, the size of standard errors is influenced heavily by the actual number of students in a given group (e.g., a disability category). Groups with very small samples have comparatively large standard errors. For example, because there are relatively few students with deaf-blindness, estimates for that group have relatively large standard errors. Therefore, readers should recognize the potential imprecision when interpreting results for this group and others with small sample sizes (sample sizes are included in Appendix B).
- **Significant differences.** In discussions of the descriptive statistics, only differences among groups that reach a level of statistical significance of at least .05 are mentioned in the text. Appendix A outlines a method for using standard errors to calculate the significance of differences among groups of interest. Multivariate analyses results indicate statistically significant results with the use of asterisks.

Organization of the Report

Chapter 2 presents the SEELS conceptual framework, which illustrates the factors that are hypothesized to relate to the achievements of students with disabilities. Chapters 3 through 6 present the results of the descriptive and multivariate analyses for the four outcome domains identified above. Chapter 7, the final chapter, identifies key lessons learned about the achievements of students with disabilities and the individual, household, and school factors that are associated with more positive outcomes in their elementary and middle school years. Appendix A provides details of the SEELS design, sample, measures, and analysis approaches, including definitions of the disability categories. Appendix B includes standard errors and sample sizes for each data table in the report.

The following chapters provide the first national picture of multiple dimensions of the achievements of students with disabilities in their elementary and middle school years and of factors that are associated with those achievements. These findings will be augmented in coming years as SEELS investigates students' transition to secondary school.