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SEELS

A NATIONAL PROFILE OF STUDENTS WITH VISUAL IMPAIRMENTS IN ELEMENTARY AND MIDDLE SCHOOLS: A SPECIAL TOPIC REPORT FROM THE SPECIAL EDUCATION ELEMENTARY LONGITUDINAL STUDY

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A National Profile of Students with Visual Impairments in Elementary and Middle School

Introduction

More than 29,000 students nationwide receive special education services under the “visual impairment including blindness” category of the Individuals with Disabilities Education Act (IDEA; 20 U.S.C. 1400 et seq.).¹ To receive services under this category, students must have as their primary disability “[a]n impairment in vision that, even with correction, adversely affects [their] educational performance.” (57 CFR § 300.7, 1999).

Low vision that cannot be corrected by lenses can be caused by conditions such as glaucoma, macular degeneration, or cataracts. Blindness can be caused by myriad factors. Regardless of the cause, however, students with a visual impairment need targeted teaching and services if they are to succeed in school and have full lives. Much of what most children learn in a casual way, such as orientation and mobility, must be specifically taught to children with visual impairments. In addition, a great deal of academic knowledge is typically presented to students in ways that require vision (for example, on printed materials and chalkboards) and students typically demonstrate what they have learned in ways that require vision (for example, by reading and answering printed test questions or through their writing). Students with a visual impairment need alternatives to these vision-based activities, but, as this report will show, with the appropriate accommodations and services, their outcomes can be very positive.

The purpose of this special topic report is to provide a national picture of students served under the visual impairment category of IDEA. The report first discusses selected demographic characteristics, degree of visual impairment, age at onset, and coexisting disabilities. The next section discusses school experiences, describing students’ instructional settings, teachers’ goals for them, their academic activities, how they access the curriculum, and the accommodations, supports, and services they receive. The following section presents several outcomes: academic performance, orientation and mobility, and social adjustment and activities. A final section presents parents’ expectations for students’ futures.

Data for this report come from the Special Education Elementary Longitudinal Study (SEELS), a study funded by the Office of Special Education Programs of the U.S. Department of Education. SEELS tracked a nationally representative sample of more than 11,000 students with disabilities (including more than 1,000 students who received IDEA services for a visual impairment as their primary disability) who were ages 6 through 13 in December 1999. Because

¹ SOURCE: Table 1-7. Children and students served under IDEA, Part B, in the U.S. and outlying areas, by age and disability category: Fall 2005. Retrieved 11/29/2006 from http://www.ideadata.org/tables29th%5Car_1-7.htm

SEELS collected longitudinal information from parents, teachers, and students on a large range of student characteristics, experiences, services, and outcomes, it provides a wealth of nationally representative information on students with a visual impairment served by special education.² SEELS students were 8 to 15 years of age at the time data were collected for this report.

This report includes only students who were reported by districts or special schools to be receiving special education services under the IDEA disability category of “visual impairment including blindness” in the 2002 school year.^{3,4} For convenience, because this IDEA disability category is often referred to as “VI,” the term “VI students” is used in this report to refer to this group of students. Students with a visual impairment who receive special education services under other IDEA disability categories or do not receive special education services at all are not included in the report. Appendix A provides information about the percentages of students in the other special education categories who also are reported by their parents to have a visual impairment.

As later sections of this report show, many of VI students’ experiences and outcomes differ, depending on their degree of visual impairment (i.e., low vision vs. blind); whether or not they have an additional disability that is likely to affect their cognition, such as mental retardation or developmental delay; and/or whether their main placement is in a general education classroom, a special education classroom, or a special school. Where analyses revealed such differences and sample sizes permitted, findings are shown for the relevant subgroups of students. For example, classroom activities are shown separately for students in different instructional placements, whereas orientation and mobility skills are shown separately for students with low vision and blind students.

For simplicity, exhibits in this report present only percentages of students. Appendix B presents detailed tables corresponding to these exhibits with percentages, standard errors, and sample sizes.

Selected Characteristics of VI Students

This section describes the students served under the IDEA disability category of visual impairments in terms of selected demographic characteristics, degree of visual impairment, age at onset, and disabilities in addition to visual impairment.

² SEELS collected data in three waves; this approach allows for longitudinal analysis. At the time of this report, data from waves 1 and 2, separated by 1 year, were available. The results presented here are from the second wave of data collection and come from the SEELS parent interview, language arts teacher questionnaire, school program questionnaire, and student assessments. Further information about SEELS is available at www.seels.net.

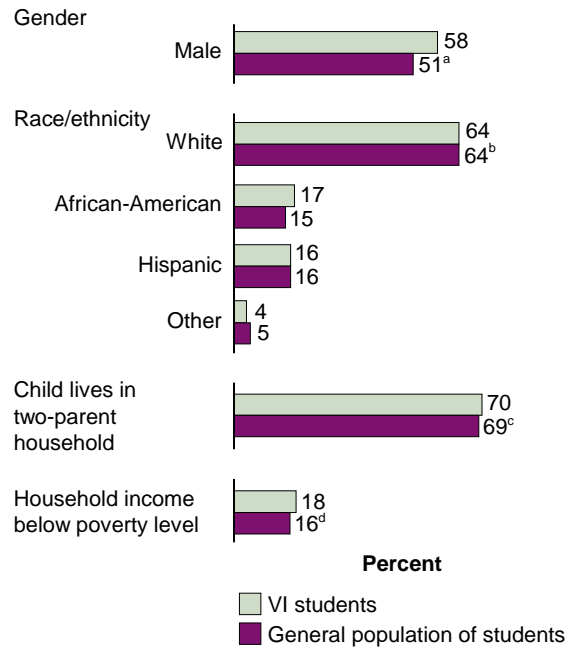
³ The sole exception is the inclusion of students from one state school for the blind that classified all of its students as having “multiple disabilities.” These students make up a very small proportion of the sample for this report.

⁴ It should be noted that 4% of students who were reported by their districts to be receiving special education services under the visual impairment category in the fall of 1999 were reported by their schools or parents not to be receiving special education services when wave 2 data were collected. These “declassified” students are excluded from the analyses in this report. Because there are so few, their inclusion in or exclusion from analyses has a very small effect on findings.

Demographic Characteristics

Except for a predominance of boys, VI students are similar demographically to students in the general population (Exhibit 1). Approximately two-thirds are white, 17% are African-American, and 16% are Hispanic; 70% live in two-parent households, and 18% live in households with incomes below the poverty level.

Exhibit 1
Selected demographic characteristics of VI students and students in the general population



^a Gender distribution of 7- to 14-year-olds. SOURCE: U.S. Census Bureau American Fact Finder. Detailed Tables 12. SEX BY AGE [209] - Universe: Total population Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data. Retrieved 2/9/2005 from http://factfinder.census.gov/servlet/DTTable?_bm=y&-geo_id=01000US&-ds_name=DEC_2000_SF1_U&-mt_name=DEC_2000_SF1_U_PCT012

^b Racial/ethnic distribution of 5- to 13-year-olds. SOURCE: U.S. Census Bureau. (2002). Table No. 16. Resident population by race and age, 1990 to 2000, and projections, 2005 and 2010. In *Statistical Abstract of the United States: 2001*. Retrieved 11/10/2004 from <http://www.census.gov/prod/2002pubs/01statab/pop.pdf>

^c Living arrangements of 7- to 14-year-olds. SOURCE: U.S. Census Bureau. (2001). Table C2. Household Relationship and Living Arrangements of Children Under 18 Years, by Age, Sex, Race, Hispanic Origin, and Metropolitan Residence: March 2000. In *America's Families and Living Arrangements March 2000: Detailed Tables for Current Population Report, P20-537*. Retrieved 11/10/04 from <http://www.census.gov/population/socdemo/hh-fam/p20-537/2000/tabC2.pdf>

^d Poverty of 6- to 13-year-olds. SOURCE: U.S. Census Bureau. (2000). Table 5. Selected characteristics of families—Total money income of families in 1999. In *Current Population Reports, P60-209, Money income in the United States: 1999*. Washington, DC: U.S. Government Printing Office. Retrieved 11/10/04 from <http://www.census.gov/prod/2000pubs/p60-209.pdf>

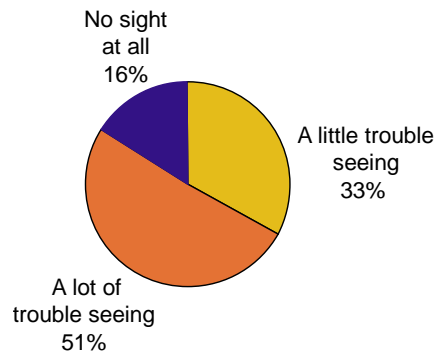
NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: SEELS data obtained through the SEELS wave 2 parent interview.

Degree of Visual Impairment

As stated in the introduction, the visual impairment category of IDEA includes both students with partial sight and students with no sight at all. According to parent reports, 33% of VI students have “a little trouble” seeing, 51% have “a lot of trouble” seeing, and 16% cannot see at all (Exhibit 2).⁵ Throughout the remainder of this report, this information obtained from parents is used to classify students either as having low vision (“a little trouble” or “a lot of trouble” seeing) or as being blind (“no sight at all”).

Exhibit 2
Percentage of VI students, by parents’ report of degree of visual impairment



NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 parent interview.

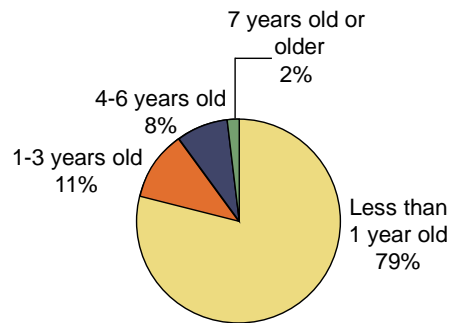
Age at Onset of Disability

Parents report that a large majority (79%) of VI students had an onset of disability before 1 year of age (Exhibit 3). For about half of the remaining students, that onset occurred before age 4. Age at onset of disability does not differ by severity of visual impairment.⁶

⁵ Degree of visual impairment can be measured accurately through tests; however, the methodological protocol used for the SEELS large-scale data collection does not include professional testing of individual students. SEELS acknowledges that although parents’ reports are important and valuable, they cannot be fully equated with the results of formal evaluations conducted by trained professionals, and that parents’ reports may reflect a combination of their perception of student functioning and the results of formal evaluations.

⁶ The mean age at onset for students with low vision was 0.8 years with a standard error of 0.15, whereas the mean age for blind students was 0.4 years with a standard error of 0.22, $t = 1.202$.

Exhibit 3
Percentage of VI students, by age at onset of disability



NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: Data obtained through the SEELS wave 2 parent interview.

Coexisting Disabilities

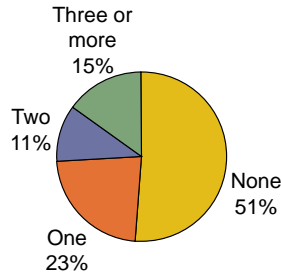
According to schools and parents, approximately half of VI students have no coexisting disabilities (Exhibit 4); however, 23% have one other disability, 11% have two, and 15% have three or more.⁷

The most common coexisting disabilities are speech/language impairments, health impairments (for example, asthma or attention deficit/hyperactivity disorder), learning disabilities, and mental retardation; from 15% to 19% of students served by special education for visual impairments also have at least one of these types of disabilities. Physical/orthopedic impairments and developmental delays affect 13% and 9% of the students, respectively. Fewer than 5% of the students are reported to have each other type of coexisting disability.

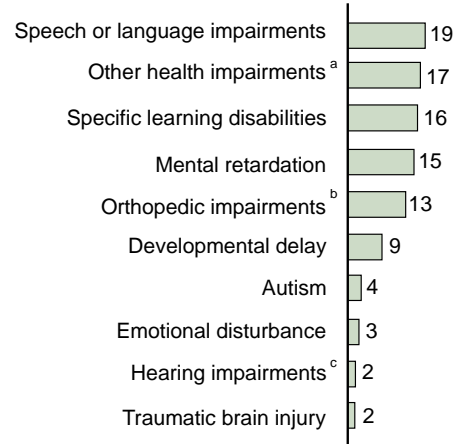
⁷ Both schools and parents were asked to indicate all of a student's disabilities. The primary source of the data reported here is the SEELS wave 2 school program questionnaire. Data from the SEELS wave 2 parent interview were used when data from the school program questionnaire were missing.

Exhibit 4
Percentage of VI students, by coexisting disabilities

Number of disabilities besides visual impairment



Type of disabilities besides visual impairment



^a E.g., asthma, attention deficit/hyperactivity disorder (AD/HD).

^b E.g., cerebral palsy, spina bifida.

^c Including deafness.

NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 school program questionnaire and the SEELS wave 2 parent interview.

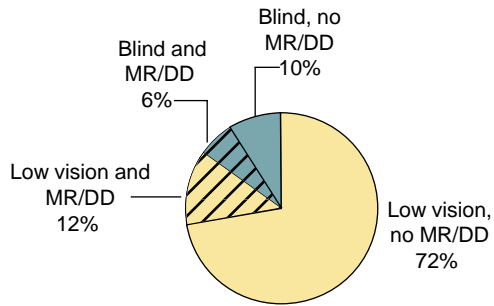
As stated in the introduction, many of the experiences and outcomes described in this report were found to be influenced by the presence of mental retardation or developmental delay in addition to visual impairment.⁸ Exhibit 5 displays the proportions of VI students by severity of visual impairment as well as by the presence of mental retardation or developmental delay (MR/DD).⁹ Thus, readers will find the percentages who (1) have low vision but not MR/DD; (2) have low vision and MR/DD; (3) are blind and do not have MR/DD; and (4) are blind and have MR/DD. The exhibit shows that:

- A large majority (72%) of VI students have low vision and do not have MR/DD.
- Eighteen percent of VI students have MR/DD in addition to their visual impairment.
- MR/DD is much more prevalent among VI students who are blind than among those with low vision. Thirty-eight percent of blind students, compared with 14% of low-vision students, have coexisting MR/DD.

⁸ Analyses revealed that no other coexisting disabilities had systematic relationships with experiences and outcomes.

⁹ Among VI students with MR/DD, 51% have mental retardation only, 20% have developmental delays only, and 29% have both, according to schools and parents.

Exhibit 5
Percentage of VI students, by severity of visual impairment and presence of mental retardation or developmental delay (MR/DD)



NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 school program questionnaire and the SEELS wave 2 parent interview.

In the remainder of this report, when findings differ for the four subgroups of VI students (low vision without MR/DD, low vision with MR/DD, blind without MR/DD, and blind with MR/DD), they are presented separately for each subgroup, providing the subsample size is large enough to support the analysis. Findings that differ only by degree of visual impairment or by presence/absence of MR/DD are presented only for the two relevant subgroups (i.e., low vision versus blind, or without versus with MR/DD).

For some experiences or outcomes, preliminary analyses suggest that a four-group analysis would be appropriate; however, the number of blind students in the sample often is insufficient to support disaggregation into those with MR/DD versus those without MR/DD. In such cases, findings are presented separately for the two subgroups of students with low vision and presented for all blind students together (regardless of presence or absence of MR/DD). When interpreting such aggregated findings, readers should bear in mind that 38% of blind students have coexisting MR/DD.

School Experiences of VI Students

Instructional Settings

Although federal law encourages the education of students with disabilities in schools and classes with students who do not have disabilities, it also recognizes that some students with disabilities may need other types of instructional settings.¹⁰ In this report, three types of instructional settings are distinguished: general education classes, special education classes, and special schools. “General education classes” are defined here as those attended predominantly by students without disabilities, and “special education classes” are defined as those

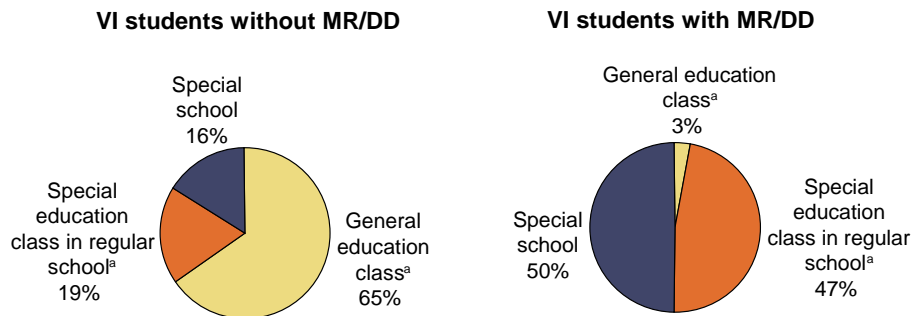
¹⁰ See 20 U.S.C. 1412(a)(5)(B).

attended predominantly by students with disabilities. Both general education classes and special education classes, as defined in this report, take place in “regular schools”—that is, schools attended predominantly by students without disabilities. “Special schools” are defined here as schools that serve exclusively students with disabilities, often with particular types of disabilities. These schools, such as schools for the blind and visually impaired or schools for the deaf and blind, are found in almost all 50 states.

An investigation of the types of schools and classes¹¹ attended by VI students reveals that 51% are in general education classes, 26% are in special education classes in regular schools, and 23% attend special schools.¹² Although there is found between instructional placement and severity of visual impairment, a strong association is found between instructional placement and presence of MR/DD:

- Among VI students who do not have MR/DD, 65% are in general education classes for their language arts instruction, 19% are in special education classes in regular schools, and 16% are in special schools (Exhibit 6).
- In dramatic contrast, among VI students who also have MR/DD, 3% are in general education classes, 47% are in special education classes in regular schools, and 50% are in special schools.

Exhibit 6
Percentage of VI students, by instructional placement and presence of MR/DD



^a Instructional placement in regular schools is measured by placement for language arts instruction.
 NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

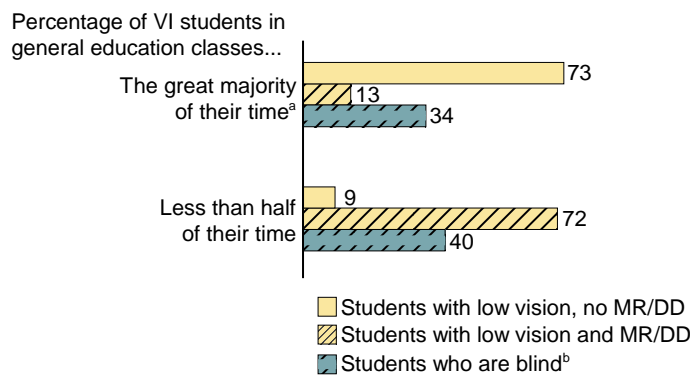
SOURCES: Data obtained through the SEELS wave 2 school program questionnaire, the SEELS wave 2 language arts teacher questionnaire, and the SEELS wave 2 parent interview.

¹¹ “Type of class” is measured by students’ placement for language arts instruction.
¹² Sources of data are as follows: For school type, the primary source of data was the SEELS wave 2 school program questionnaire. If data from the school program questionnaire were missing, data obtained through the wave 2 parent interview were used. For instructional placement within regular schools, the primary source of data was the SEELS wave 2 language arts teacher questionnaire. If data from that questionnaire were missing, data obtained through the wave 2 school program questionnaire were used.

Among VI students in regular schools, the proportion of school time spent in general education settings is associated with both severity of visual impairment and presence of MR/DD (Exhibit 7).

- Approximately three-fourths of low-vision students without MR/DD (73%) spend the great majority of their school time in general education settings. In contrast, only 13% of low-vision students with MR/DD and 34% of blind students spend the great majority of their school time in such classes.

Exhibit 7
Proportion of time spent in general education classes by VI students in regular schools, by level of visual impairment and presence of MR/DD



^a “The great majority of their time” means more than 80% of their time.

^b The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis. The majority of blind students represented in this exhibit do not have MR/DD.

NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

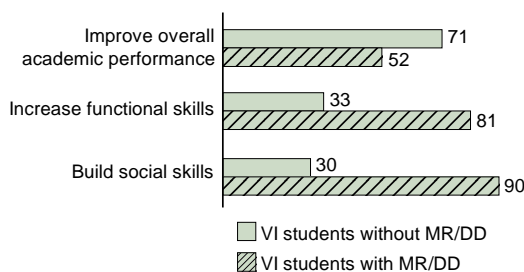
SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

Educational Goals

One of the hallmarks of special education is the principle of goal-oriented instruction to meet students’ individual needs. The annual process of examining student needs; mapping curriculum, instruction, and accommodations to those needs; and measuring progress toward them is a compelling model for all students served under IDEA, including those with visual impairments. Schools report that:

- Improving overall academic performance is a goal on the individualized education programs (IEPs) of 71% of VI students who do not have MR/DD, whereas it is a goal for 52% of VI students with MR/DD (Exhibit 8).
- Increasing functional skills and building social skills are goals for the great majority of VI students with MR/DD; they are goals for approximately one-third of VI students without MR/DD.

Exhibit 8 Percentage of VI students, by IEP goals by presence of MR/DD



NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

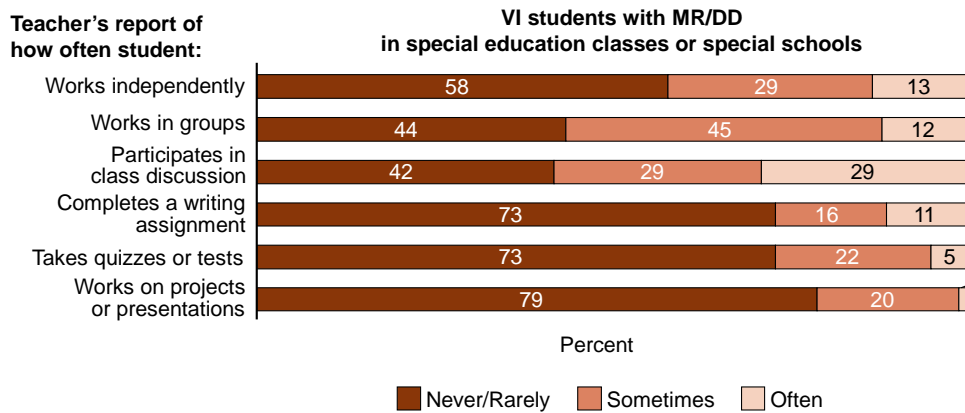
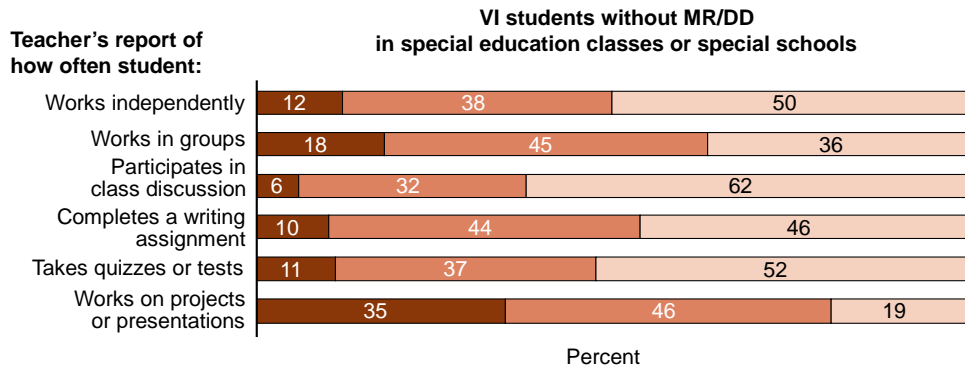
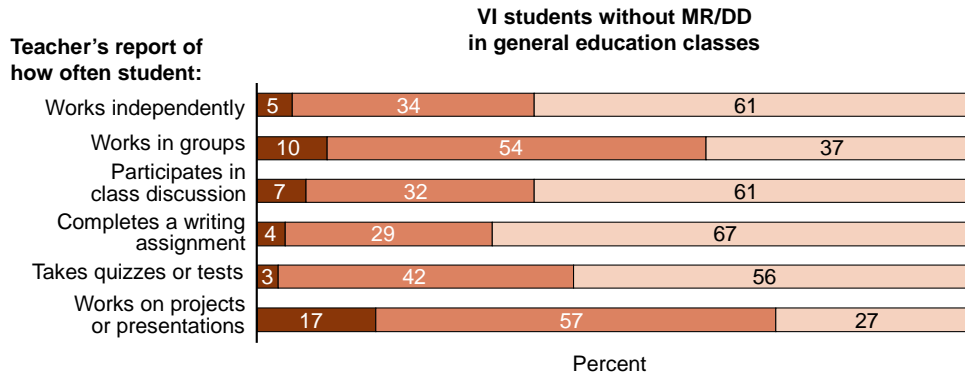
Classroom Activities

According to the reports of language arts teachers, the classroom activities of VI students depend greatly on whether those students have MR/DD.

- Teachers report that almost all VI students without MR/DD who receive instruction in general education classrooms “often” or “sometimes” work independently, work with a peer partner or group, participate in class discussions, complete writing assignments, and/or take quizzes or tests. Teachers also report that a large majority of these students “often” or “sometimes” work on projects or presentations (Exhibit 9).
- The activity profiles of VI students without MR/DD who receive instruction in special education classrooms or special schools are similar to those of VI students who receive instruction in general education classrooms.
- VI students with MR/DD who receive instruction in special education classes or special schools are much less likely than VI students without MR/DD (regardless of instructional setting) to engage in each type of classroom activity listed in Exhibit 9.¹³

¹³ The small number of VI students with coexisting MR/DD in general education classes in the SEELS sample does not permit presentation of findings for this group.

Exhibit 9
Frequency of engagement in selected classroom activities, by presence of MR/DD and instructional placement



NOTES: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

Instructional placement is measured by students’ language arts placement.

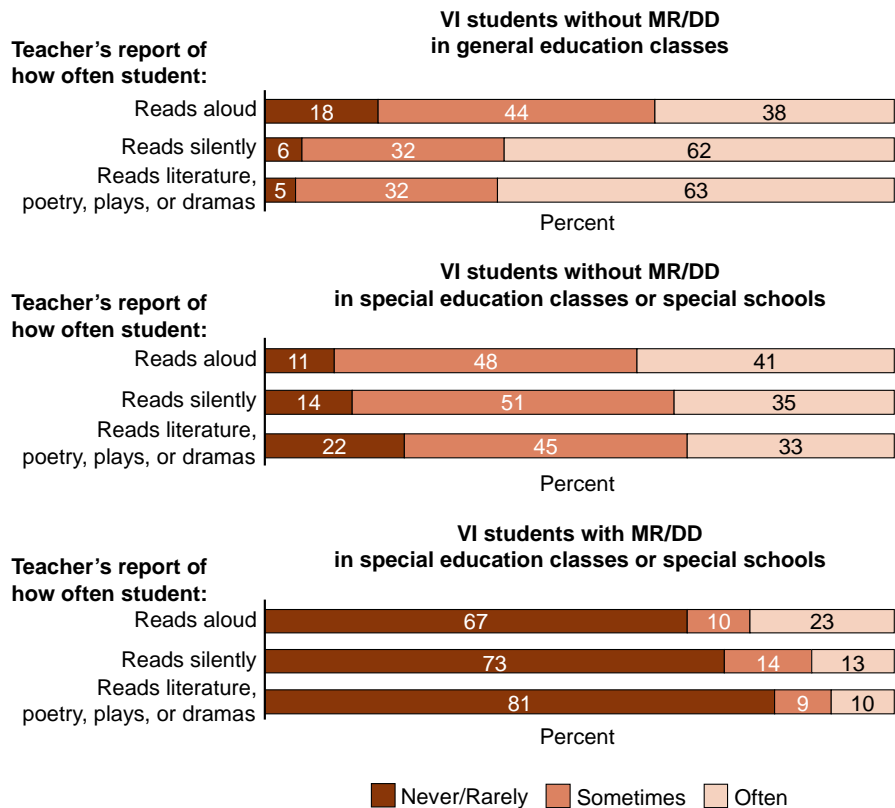
The small number of VI students with MR/DD in general education classes in the SEELS sample does not permit a display of findings for this group.

SOURCE: Data obtained through the SEELS wave 2 language arts teacher questionnaire.

Reading activities of VI students vary with students' educational placement as well as coexistence of MR/DD (Exhibit 10). Language arts teachers report that:

- Thirty-eight percent of VI students without MR/DD “often” read aloud during language arts instruction. Almost two-thirds “often” read silently; a similar fraction “often” read literature, poetry, plays, or dramas.
- VI students without MR/DD in special education classes or special schools are about as likely as VI students in general education classes to “often” read aloud; however, considerably fewer are reported to “often” read silently or read literature, poetry, plays, or dramas.
- At least two-thirds of VI students with MR/DD in special education classes or special schools “never” or “rarely” engage in each type of reading activity.

Exhibit 10
Frequency of engagement in selected reading activities, by presence of MR/DD and instructional placement



NOTES: Instructional placement refers to the student's language arts placement.

Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

The small number of VI students with MR/DD in general education classes in the SEELS sample does not permit presentation of findings for this group.

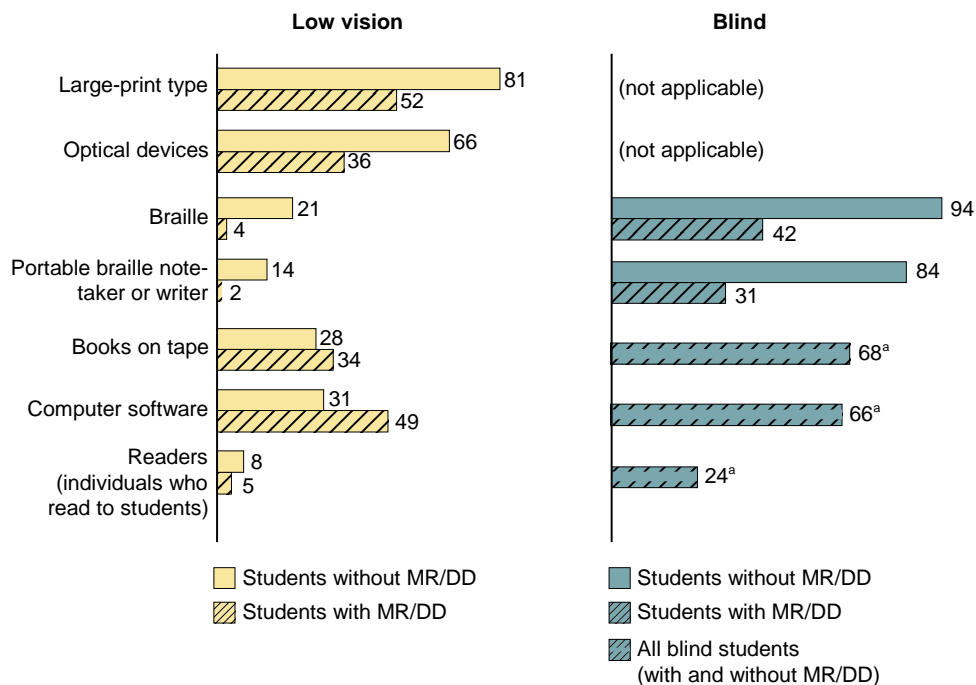
SOURCE: Data obtained through the SEELS wave 2 language arts teacher questionnaire.

How VI Students Access the Curriculum

Vision plays an important role in the way most students access the curriculum. For example, they read printed matter, take notes from the blackboard, and watch demonstrations. Some VI students use these same means of access, although the use of vision presents more of a challenge for them; however, many access the curriculum in other ways. Federal regulations mandate that schools must provide appropriate assistive technology as well as instruction in braille and the use of braille for students who otherwise would have less than full access to the curriculum (34 CFR Section 300.346).

SEELS asked parents and schools about students' use of a variety of assistive technologies, devices, and services that could be used to access the curriculum. Exhibit 11 presents their reports, which reflect the great variety in use depending on severity of visual impairment and presence or absence of MR/DD.

Exhibit 11
Percentage of VI students accessing the curriculum by various means, by severity of visual impairment and presence of MR/DD



^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis.

NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCES: Data obtained through the SEELS wave 2 parent interview (large-print type, optical devices, assistive technology, braille, portable braille notetaker or writer) and the SEELS wave 2 school program questionnaire (books on tape, computer software, reader).

Parents and schools report that:

- A great majority of students with low vision without MR/DD use large-print type, and a substantial majority use optical devices.
- Approximately one-third to one-half of students with low vision and MR/DD use large-print type, optical devices, books on tape, and/or computer software.
- Nearly all blind students without MR/DD use braille, and a great majority use portable braille notetakers or writers. Fewer than half of blind students with MR/DD use each of these supports.
- A substantial majority of blind students use books on tape and/or specialized computer software designed for students with disabilities. Readers (individuals who read to students) are much less common; however, approximately one in four blind students have them.

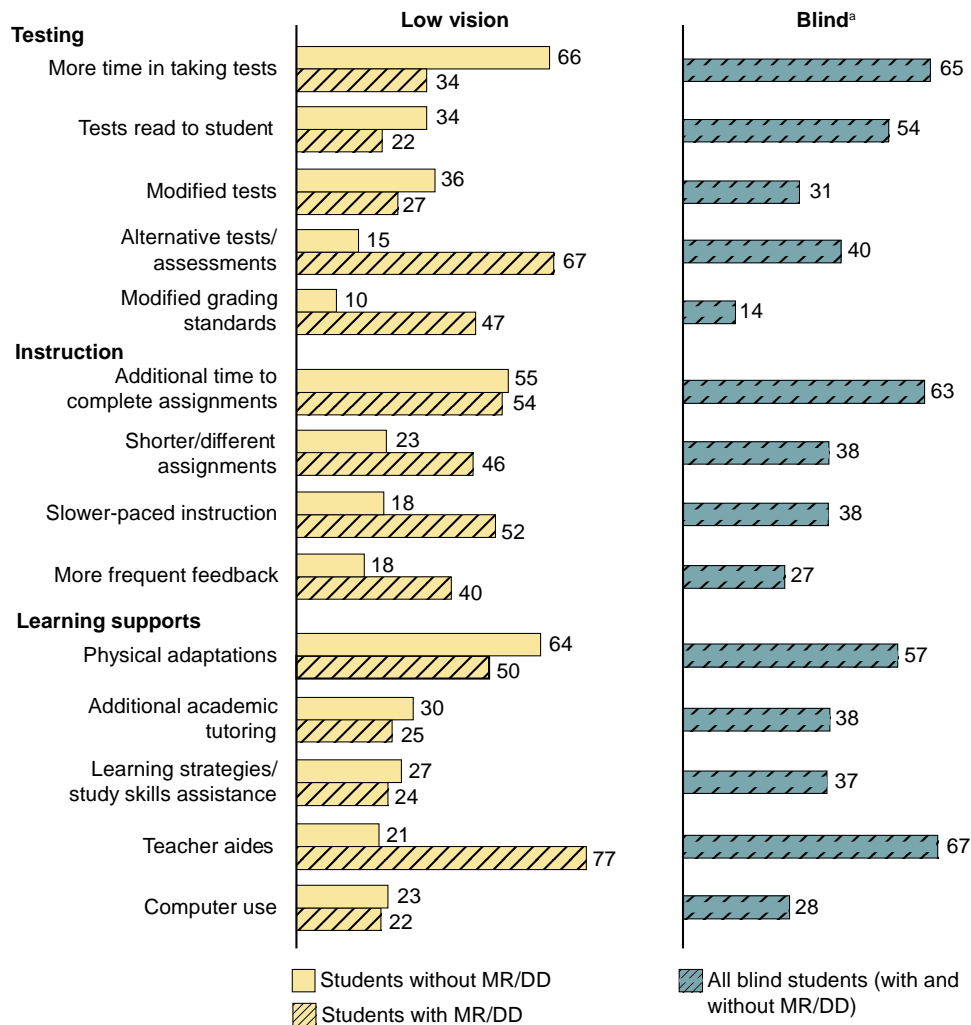
Academic Accommodations and Supports

In addition to the technologies, devices, or services that proxy for vision as VI students access the curriculum, a variety of other types of accommodations and supports can help them perform up to their true ability. Such accommodations and supports are increasingly part of the educational programs of all students with disabilities.

Analyses of schools' reports of the accommodations and supports included in students' IEPs reveal that almost all VI students receive some type of accommodation or learning support; however, the specific types vary somewhat by the student's degree of visual impairment and/or coexistence of MR/DD.

- For low-vision students without MR/DD, the most common accommodations and supports are increased time to complete tests and assignments, and physical adaptations (Exhibit 12).
- For low-vision students with MR/DD, the most common accommodations and supports are alternative tests and assessments and teacher aides. Modified grading standards, additional time to complete assignments, assignments that are shorter or different from those of other students in the classroom, slower-paced instruction, and physical adaptations are somewhat less common but are provided to approximately half of students in this group.
- For blind students, the most common accommodations are increased time to take tests, having tests read to them, additional time to complete assignments, physical adaptations, and teacher aides to support their learning. Each of these services is received by a majority of blind students.

Exhibit 12
Percentage of VI students receiving selected academic accommodations,
by severity of visual impairment and presence of MR/DD



^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

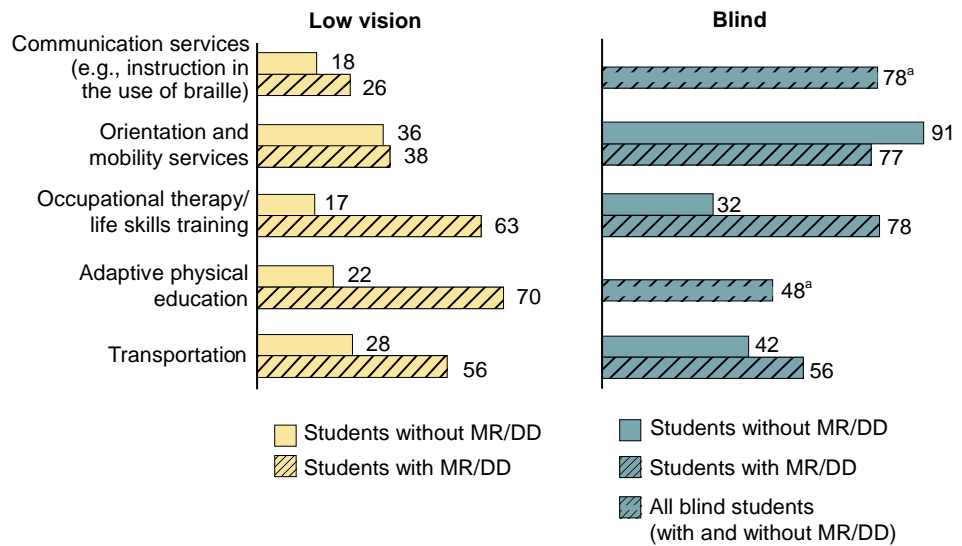
Disability-Related Services

IDEA mandates that students be provided “transportation and such developmental, corrective, and other supportive services ... as are required to assist a child with a disability to benefit from special education...” (20 U.S.C. 1401(22)). Among the “disability-related services” specifically mentioned in the law are physical and occupational therapy and orientation and mobility services. In addition, the law calls for instruction in the use of braille for all students with visual impairments unless the IEP team determines that such instruction is not appropriate for the child (20 U.S.C. 1414(d)(3)(B)(iii)).

SEELS asked parents and schools whether students were receiving a variety of disability-related services from their schools or districts. Parents were asked about orientation/mobility training, occupational therapy/life skills training, and transportation; schools were asked about communication services (including instruction in the use of braille) and adaptive physical education. Their reports indicate that:

- Relatively few low-vision students without MR/DD receive these types of disability-related services (Exhibit 13).
- The majority of low-vision students with MR/DD receive occupational therapy/life skills therapy, adaptive physical education, and/or transportation services.
- A substantial majority of blind students receive communication services and orientation and mobility services, and approximately half receive adaptive physical education.
- Approximately 90% of blind students without MR/DD receive orientation and mobility services.
- Substantial majorities of blind students with MR/DD receive orientation and mobility services and occupational therapy/life skills services, and more than half receive transportation services.

Exhibit 13
Percentage of VI students receiving selected nonacademic services from schools or districts, by severity of visual impairment and presence of MR/DD



^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 parent interview and the SEELS wave 2 school program questionnaire.

Outcomes

Academic Performance

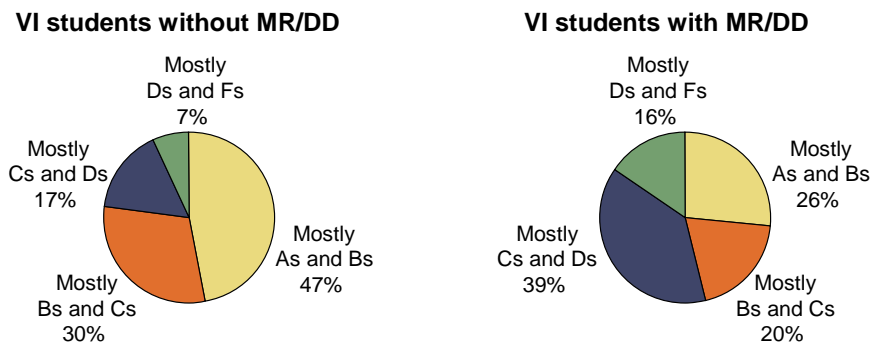
Grades

Teachers' evaluations of student performance, as indicated by course grades, represent a common metric that is associated with the day-to-day business of teaching and learning. When considering students' grades, it is important to note that grades are not a standardized measure of student academic performance or knowledge. They can represent a combination of factors such as performance on tests, class work, homework, class participation, attendance, and effort. In addition, grades are determined sometimes on the basis of absolute standards and sometimes on the basis of relative standards. Grades can be influenced inadvertently by teacher expectations, students' class context, and the like. Furthermore, as reported earlier, teachers use modified standards in grading some students' work. Nevertheless, the profile of student grades is included in this report, as grades are a primary means by which teachers communicate to students and parents information about students' mastery of course content.

Parents and schools¹⁴ report that:

- Most VI students who do not have MR/DD receive good grades; 47% receive “mostly As and Bs,” and another 30% receive “mostly Bs and Cs” (Exhibit 14).¹⁵
- The grades of VI students who have MR/DD are considerably lower than those of VI students who do not have MR/DD, with about half of those with MR/DD (46%) receiving “mostly As and Bs” or “mostly Bs and Cs.”

Exhibit 14
Percentage of VI students, by typical grades received in school and presence of MR/DD



NOTES: Percentages for each pie may not sum to 100% because of rounding.

Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 parent interview and the SEELS wave 2 school program questionnaire.

¹⁴ Parents were the primary source of information about grades. For students without parent interviews, information obtained through the school program questionnaire was used.

¹⁵ Analyses do not reveal any significant differences in grades between low-vision students and blind students once coexistence of MR/DD is taken into account. See Appendix Table B-14 for the grades of low-vision and blind students with and without MR/DD.

Standardized Test Scores

Research editions of the Woodcock-Johnson III (WJ III) test were used to conduct standardized assessments of reading and mathematics with SEELS students.¹⁶ WJ III is an individually administered test that allows comparison with the general population. The WJ III passage comprehension subtest asks students to “fill in the missing word” to complete sentences with the correct meaning. The WJ III calculation subtest measures students’ computation skills, ranging in difficulty from elementary (e.g., simple addition) to advanced (e.g., integrating a function).

Exhibit 15 presents the performance of VI students on the WJ III tests, expressed in terms of nationally representative quartiles. These quartiles are defined such that among all students in the general population nationally, 25% score in each quartile.

When examining Exhibit 15, it is important to note that SEELS administered the WJ III only to students who met particular screening criteria, including basic literacy (for print or braille). Students who did not meet the screening criteria (11% of students with low vision and 34% of blind students; 7% of VI students without MR/DD and 63% of VI students with MR/DD) were assessed by their respective teachers, who completed the Scales of Independent Behavior-Revised (SIB-R; Bruininks, Woodcock, Weatherman, & Hill, 1996).¹⁷ In Exhibit 15, these students’ national percentile scores for the “Community Living Skills” section of the SIB-R were used to impute their calculation scores, and their national percentile scores for the “Social Interaction Skills” section of the SIB-R were used to impute their passage comprehension scores.¹⁸

There are virtually no differences between the academic standardized scores of low-vision and blind students; however, there are large differences between the scores of VI students with and without MR/DD.

- VI students without MR/DD:
 - Are somewhat more likely than students in the general population to score in the two lowest quartiles; yet 18% score in the next-to-top quartile, and 20% score in the top quartile.
 - Perform less well on passage comprehension than on calculation, with 45% scoring in the lowest quartile and only 24% scoring in the top two quartiles.
- The vast majority of VI students with MR/DD score in the lowest quartile of both the calculation and passage comprehension tests.

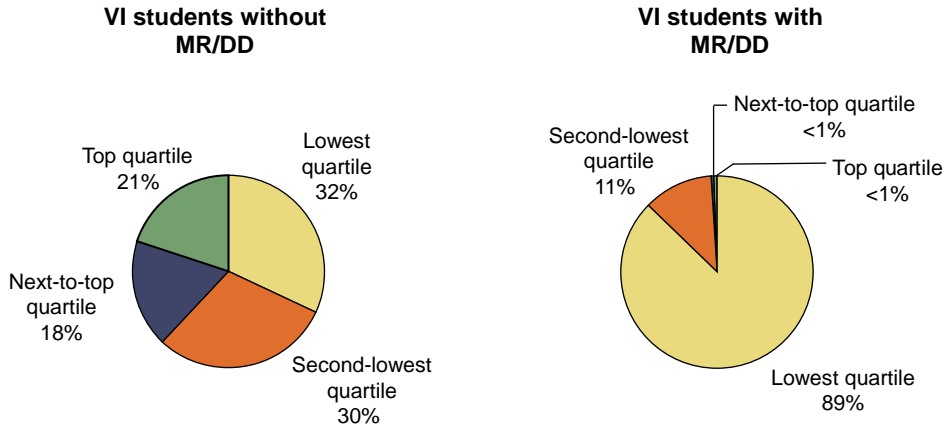
¹⁶ See Woodcock, McGrew, and Mather (2001).

¹⁷ For more details about the SEELS alternate assessment, see Cameto, Sanford, and Blackorby (forthcoming).

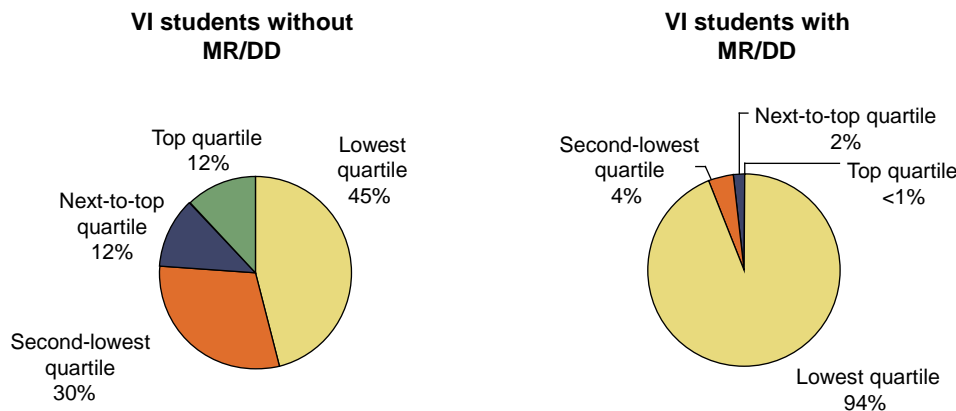
¹⁸ These two SIB-R sections included “money and value” components and “language comprehension” components, which generally targeted the types of skills and abilities assessed through the WJ III “calculation” and “passage comprehension” subtests, respectively. Ninety-seven percent of the VI students who were assessed for SEELS using the SIB-R scored in the lowest national quartile on the “Community Living Skills” section, and 94% scored in the lowest national quartile on the “Social Interaction Skills” section. Their raw scores on the “money and value” and “language comprehension” components, for which no percentile scores were available, were very low as well.

Exhibit 15
Percentage of VI students, by standardized test score quartile and presence of MR/DD

Calculation



Passage comprehension



NOTES: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

Percentages in individual pie charts may not sum to 100% because of rounding.

SEELS administered the WJ III only to students who met particular screening criteria, including basic literacy (for print or braille). Seven percent of VI students without MR/DD and 63% of VI students with MR/DD did not meet the screening criteria and were assessed by teachers, who completed the Scales of Independent Behavior-Revised (SIB-R; Bruininks, et al., 1996). These students’ national percentile scores for the “Community Living Skills” section of the SIB-R were used to impute their calculation scores, and their national percentile scores for the “Social Interaction Skills” section of the SIB-R were used to impute their passage comprehension scores. These two SIB-R sections included “money and value” components and “language comprehension” components, which generally targeted the types of skills and abilities assessed through the WJ III “calculation” and “passage comprehension” subtests, respectively. Ninety-seven percent of the VI students who were assessed for SEELS using the SIB-R scored in the lowest national quartile on the “Community Living Skills” section, and 94% scored in the lowest national quartile on the “Social Interaction Skills” section. Their raw scores on the “money and value” and “language comprehension” components, for which no percentile scores were available, were very low as well.

SOURCE: Data obtained through the SEELS wave 2 direct assessment and SEELS wave 2 alternate assessment.

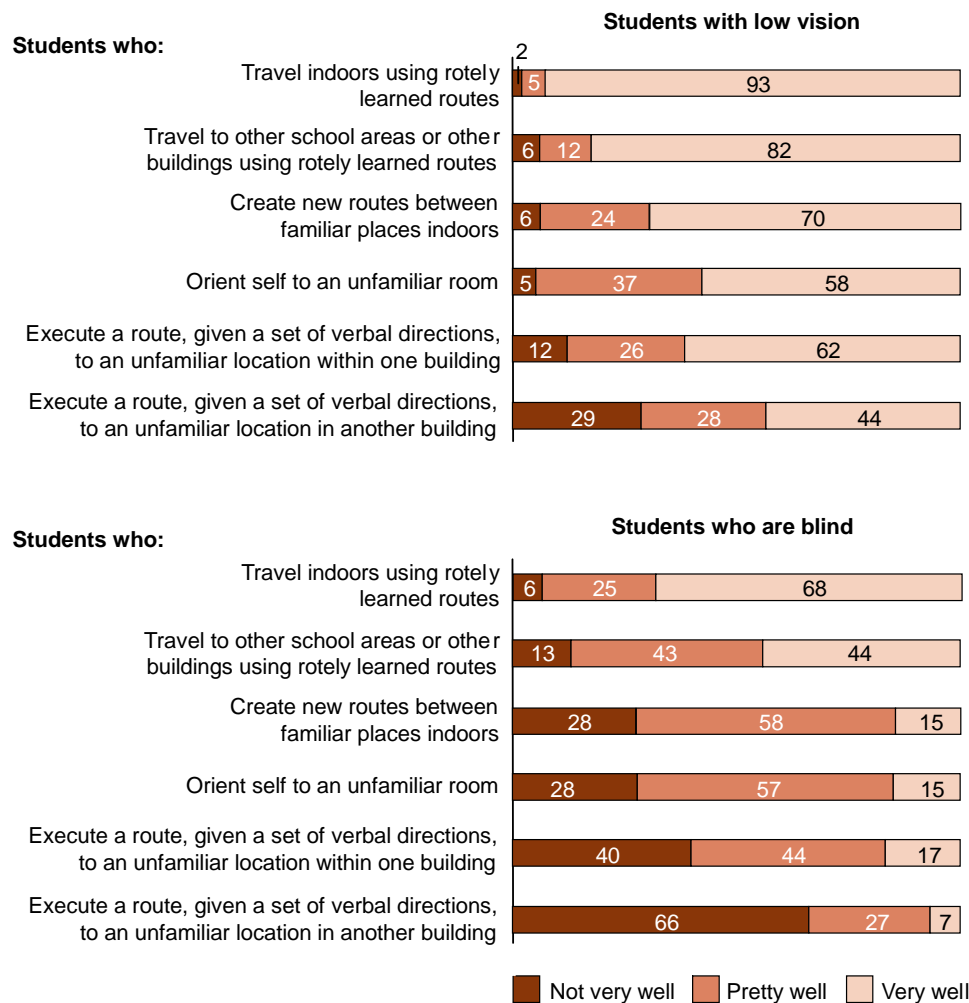
Orientation and Mobility Skills

The ability to move safely and efficiently through the environment is highly important for a full, independent life. For many individuals with visual impairments, developing this ability requires learning ways to orient themselves to their environment and techniques to navigate through it. In addition to schools' report on students' receipt of orientation and mobility services (see page 16), SEELS obtained information about students' orientation and mobility skills by requesting that the school staff member most familiar with the student complete a checklist of selected items from *TAPS—Teaching Age-Appropriate Purposeful Skills*, developed by the Texas School for the Blind and Visually Impaired (Pogrund, Healy, Jones, Levack, Martin-Curry, et al., 1995). Schools report that:

- Most students with low vision have few or no problems with orientation and mobility. Schools report that the vast majority perform most tasks “very well” or “pretty well” (Exhibit 16).
- The great majority of students who are blind are reported to be able to travel indoors or to other school areas or buildings using rotely learned routes either “very well” or “pretty well,” and a substantial majority can create new routes or orient themselves to an unfamiliar room “very well” or “pretty well.” Executing a route using a set of verbal directions tends to pose greater difficulty for blind students. In interpreting these findings, it is important to note that 42% of the blind students for whom mobility data were available have coexisting MR/DD. A small percentage (5%) have orthopedic impairments as well (all blind students in this analysis who have orthopedic impairments also have MR/DD).¹⁹

¹⁹ The small number of blind students for whom mobility data are available (n = 41) does not permit the presentation of separate findings for blind students with and without coexisting MR/DD.

Exhibit 16
Percentage of VI students, by ability to perform selected mobility tasks and severity of visual impairment



NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

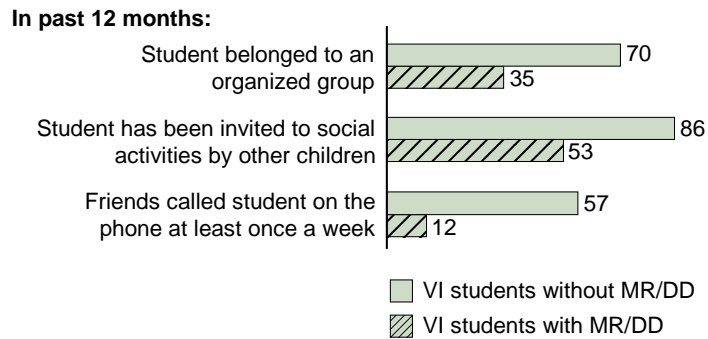
Social Adjustment and Activities

Acquiring academic knowledge may be thought of as the main task of children during their school years; however, to live full lives, individuals also need to have social skills and experiences. Although many types of disabilities can present challenges in these areas, VI students appear to be well adjusted both in school and outside of school. According to parents’ reports:

- More than 90% of VI students get along “pretty well” or “very well” with other students and with teachers. The percentages do not differ across various subgroups of VI students (i.e., low vision vs. blind students; students who do not also have MR/DD vs. students who also have MR/DD).

- The likelihood of participating in activities outside of school differs for VI students, depending on whether or not they have MR/DD (Exhibit 17). Large majorities of students without such coexisting impairments belong to organized groups and/or have been invited to social activities in the past 12 months, and more than half speak with friends by phone at least once a week. VI students with MR/DD are far less likely to take part in each of these types of activities.

Exhibit 17
Percentage of VI students engaging in selected nonschool activities, by presence of MR/DD



NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

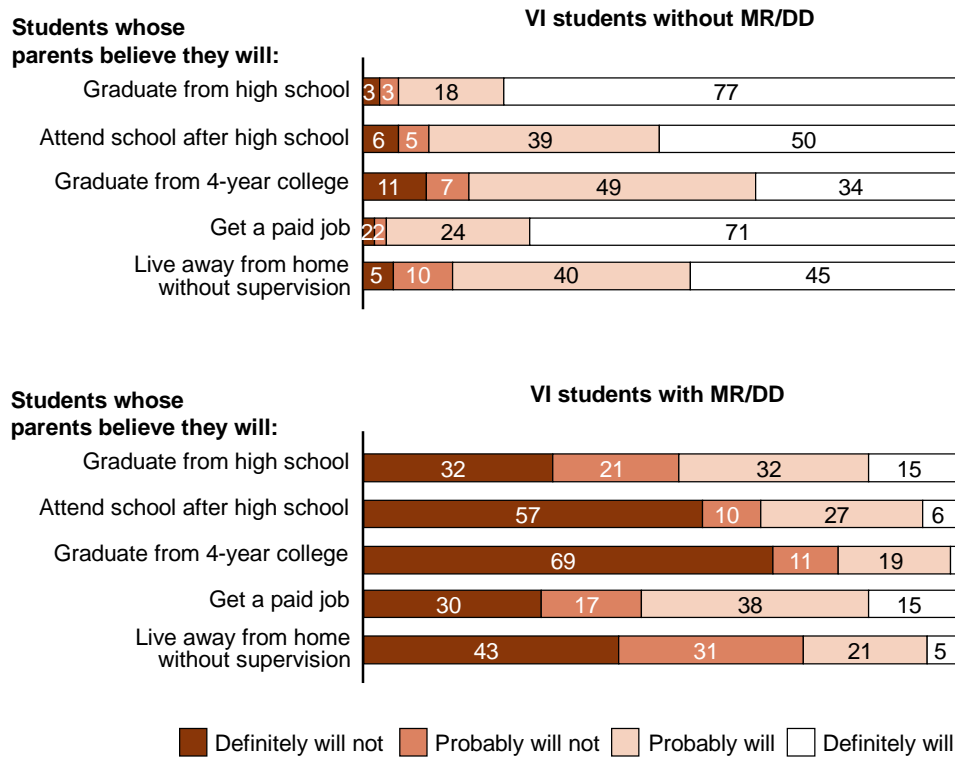
SOURCE: Data obtained through the SEELS wave 2 parent interview.

Expectations for the Future

Many VI students are reported to be doing well both in and out of school, but what will their futures hold? In most cases, parents have close contact with and best knowledge of their children; thus, parents are likely to be fairly accurate predictors of their children’s futures. Parents’ expectations for students’ success in life have been linked frequently to greater parental involvement in students’ educational lives, and often to later success. These relationships apply to all students, with and without disabilities (Newman, 2005). Exhibit 18 shows that the expectations parents have for VI students vary greatly, depending on whether the students have coexisting MR/DD.

- Parents of 83% to 96% of VI students without MR/DD—regardless of severity of their children’s visual impairments—believe that they “definitely will” or “probably will” graduate from high school, attend school after high school, graduate from a 4-year college, get a paid job, and live away from home without supervision.
- Expectations for VI students who have MR/DD are much more guarded than for those who do not have MR/DD. Although approximately half are expected to graduate from high school and get a paid job, no more than one-third are expected to attend postsecondary school, graduate from college, or live away from home without supervision.

Exhibit 18
Percentage of VI students, by selected parent expectations and presence of MR/DD



NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 parent interview.

Summary

Students who receive special education services because of their visual impairments (VI students) are a diverse group. It might seem intuitive that the main factor that differentiates these students is the extent of their vision limitation. Indeed, students with low vision and blind students are distinctive along several dimensions. Students with low vision tend to

- access the curriculum using large-print and/or optical devices;
- have IEP goals focusing on improving academic skills, rather than on functional skills; and
- have relatively few or no problems with orientation and mobility.

In contrast, blind students tend to

- access the curriculum using braille, braille notetakers or writers, books on tape, and/or specialized computer software;
- have IEP goals focusing on increasing functional skills as well as improving academic skills;

- receive orientation and mobility services; and
- have developed good orientation and mobility indoors or to areas with which they are familiar, although approximately half have difficulty executing a route to an unfamiliar location.

The coexistence of cognitive impairments, such as mental retardation or some developmental delay (MR/DD), also presents a very striking distinction with respect to the functional capabilities of these students with a visual impairment. MR/DD is more prevalent among students who are blind than among students with low vision; however, the impact of MR/DD tends to be great regardless of the severity of visual impairment.

Parents of VI students without MR/DD—regardless of whether the students have low vision or are blind—tend to have high expectations for them, and these expectations appear to be warranted on the basis of these students’ current performance. VI students without MR/DD tend to be in general education classes in regular schools and to receive a variety of accommodations, most commonly more time to complete assignments and tests and physical adaptations. Most participate in a variety of classroom activities. They tend to receive good grades—with about half receiving mostly As and Bs—and their performance on a standardized test of calculation does not differ greatly from that of students in the general population, although their passage comprehension performance tends to be poorer. Socially, they appear to be very well adjusted, getting along well with teachers and other students and participating in social activities.

Students who have MR/DD in addition to their visual impairments present quite a different picture. Parents have guarded expectations regarding their futures—only about half are expected to graduate from high school, and slightly more are expected to get a paid job. Approximately half attend special schools, and many of those in regular schools are in special education classes. The IEPs of many of these students include goals of building functional and social skills, and many receive occupational therapy/life skills training. They are much less likely than students without MR/DD to use braille or notetakers to access the curriculum, and they are more likely to receive accommodations, with many receiving slower-paced instruction, shorter or different assignments, and alternative tests or assessments. Teachers are more likely to use modified standards when grading these students than when grading VI students who do not exhibit MR/DD. However, the academic difficulties of VI students who have MR/DD are evidenced by the fact that half of them receive grades characterized as “mostly Cs and Ds” or “mostly Ds and Fs” and even more so by the fact that the vast majority score in the lowest quartile on standardized tests of calculation and passage comprehension or on a proxy for such tests. Although most VI students with MR/DD are reported by parents to get along well with teachers and other students, a large proportion of students in this group may be considered socially isolated; in a 12-month period, only a third belonged to an organized group, half had not been invited to any social activities in the past year, and few were telephoned by friends even once a week.

This special topic report has shown that many students with a visual impairment receive accommodations and disability-related services from their schools or districts. Academically and socially, many of them appear to be quite successful; however, a substantial minority are doing less well. The considerable heterogeneity among students classified as “visually impaired” highlights the need for educators to look beyond “the label” and tailor instruction, accommodations, services, and supports to students’ individual needs.

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Appendices

A. Students with Visual Impairments Served Under Other Special Education Categories

SEELS asked parents of students with each type of primary disability to indicate how well their son or daughter was able to see. For students who wore corrective lenses, parents were asked about the student’s vision with the lenses. Some parents of students in every category indicated that their children had vision problems; however, in most cases the numbers were small (Exhibit A-1). The exceptions were students in the traumatic brain injury and multiple disabilities categories, 6% of whom were reported to have “a lot of trouble seeing” and 2% of whom were reported not to be able to see at all. Although the reports of parents of students with deaf-blindness are not shown in Exhibit A-1 because of the small number of these students in the SEELS sample, it is reasonable to assume that all students in that classification have serious visual impairments.

Exhibit A-1. Parents’ reports of visual impairments among students receiving special education services under IDEA categories other than “visual impairment including blindness”

Student’s primary disability category	Percent of students reported to have...	
	A lot of trouble seeing	No sight at all
Specific learning disabilities	1	0
Speech impairments	1	0
Mental retardation	3	1
Emotional disturbance	1	0
Hearing impairments	1	0
Orthopedic impairments	3	0
Other health impairments	2	1
Autism	1	0
Traumatic brain injury	6	2
Multiple disabilities	6	2
Deaf-blindness	‡	‡

‡ Sample size too small to report.

SOURCE: SEELS wave 2 parent interviews.

B. Companion Tables Detailing Exhibits in This Report

Table B-1. Selected demographic characteristics of VI students and students in the general population

		VI students	General population
Gender			
Male	Pct.	57.7	51.2 ^a
	Std. err.	(3.15)	
	Unweighted n	707	
Race/ethnicity			
White	Pct.	63.5	64.2 ^b
	Std. err.	(3.01)	
African-American	Pct.	16.6	14.9
	Std. err.	(2.33)	
Hispanic	Pct.	16.3	15.8
	Std. err.	(2.31)	
Other	Pct.	3.6	5.1
	Std. err.	(1.17)	
	Unweighted n	729	
Child lives in two-parent household	Pct.	69.8	68.8 ^c
	Std. err.	(3.32)	
	Unweighted n	544	
Household income below poverty level	Pct.	17.6	16.3 ^d
	Std. err.	(2.98)	
	Unweighted n	477	

^a Gender distribution of 7- to 14-year-olds. SOURCE: U.S. Census Bureau American Fact Finder. Detailed Tables 12. SEX BY AGE [209] - Universe: Total population Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data. Retrieved 2/9/2005 from http://factfinder.census.gov/servlet/DTTable?_bm=y&-geo_id=01000US&-ds_name=DEC_2000_SF1_U&-mt_name=DEC_2000_SF1_U_PCT012

^b Racial/ethnic distribution of 5- to 13-year-olds. SOURCE: U.S. Census Bureau. (2002). Table No. 16. Resident population by race and age, 1990 to 2000, and projections, 2005 and 2010. In *Statistical Abstract of the United States: 2001*. Retrieved 11/10/2004 from <http://www.census.gov/prod/2002pubs/01statab/pop.pdf>

^c Living arrangements of 7- to 14-year-olds. SOURCE: U.S. Census Bureau. (2001). Table C2. Household Relationship and Living Arrangements of Children Under 18 Years, by Age, Sex, Race, Hispanic Origin, and Metropolitan Residence: March 2000. In *America's Families and Living Arrangements March 2000: Detailed Tables for Current Population Report, P20-537*. Retrieved 11/10/04 from <http://www.census.gov/population/socdemo/hh-fam/p20-537/2000/tabC2.pdf>

^d Poverty of 6- to 13-year-olds. SOURCE: U.S. Census Bureau. (2000). Table 5. Selected characteristics of families—Total money income of families in 1999. In *Current Population Reports, P60-209, Money income in the United States: 1999*. Washington, DC: U.S. Government Printing Office. Retrieved 11/10/04 from <http://www.census.gov/prod/2000pubs/p60-209.pdf>

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: SEELS data obtained through the SEELS wave 2 parent interview.

Table B-2. Percentage of VI students, by parents' report of degree of visual impairment

Parent-reported degree of visual impairment	Percent of students	Standard error
A little trouble seeing	32.9	(3.39)
A lot of trouble seeing	50.8	(3.60)
No sight at all	16.3	(2.66)
Unweighted n		550

NOTE: Exhibit includes only 8- to 15-year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: Data obtained through the SEELS wave 2 parent interview.

Table B-3. Percentage of VI students, by age at onset of disability

Parent-reported age at onset of disability	Percent of students	Standard error
Less than 1 year old	78.9	(3.03)
1 to 3 years old	11.1	(2.33)
4 to 6 years old	7.8	(2.00)
7 years old or older	2.2	(1.09)
Unweighted n		533

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: Data obtained through the SEELS wave 2 parent interview.

Table B-4. Percentages of VI students, by coexisting disabilities

Number of disabilities besides visual impairment	Percent of students	Standard error
None	51.3	(3.14)
One	23.2	(2.66)
Two	10.6	(1.94)
Three or more	14.9	(2.24)
Unweighted n		714

Type of disabilities besides visual impairment	Percent of students	Standard error
Speech/language impairments	19.3	(2.49)
Other health impairments ^a	17.0	(2.37)
Specific learning disabilities	16.4	(2.34)
Mental retardation	15.2	(2.27)
Orthopedic impairments ^b	13.3	(2.15)
Developmental delay	9.25	(1.83)
Autism	4.1	(1.24)
Emotional disturbance	2.6	(1.01)
Hearing impairments ^c	2.1	(0.90)
Traumatic brain injury	2.3	(0.94)
Unweighted n		714

^a E.g., asthma, attention deficit/hyperactivity disorder (AD/HD).

^b E.g., cerebral palsy, spina bifida.

^c Including deafness.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCES: Data obtained through the SEELS wave 2 school program questionnaire and SEELS wave 2 parent interview.

Table B-5. Percentage of VI students, by severity of visual impairments and presence of mental retardation or developmental delay (MR/DD)

Severity of visual impairment and presence of MR/DD	Percent of students	Standard error
Low vision, no MR/DD	71.8	(3.29)
Low vision and MR/DD	11.7	(2.35)
Blind, no MR/DD	10.0	(2.20)
Blind and MR/DD	6.4	(1.79)
Unweighted n		550

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 parent interview.

Table B-6. Percentage of VI students, by instructional placement and presence of MR/DD

Language arts instruction setting of VI students		VI students	
		Without MR/DD	With MR/DD
General education class	Pct.	65.4	3.1
	Std. err.	(4.31)	(2.55)
Special education class in regular school	Pct.	18.9	46.8
	Std. err.	(3.55)	(7.31)
Special school	Pct.	15.7	50.1
	Std. err.	(3.29)	(7.33)
Unweighted n		349	103

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 school program questionnaire, the SEELS wave 2 language arts teacher questionnaire, and the SEELS wave 2 parent interview.

Table B-7. Proportion of time spent in general education classes by VI students in regular schools, by level of visual impairment and presence of MR/DD

Percentage of VI students in general education classes...		Students with low vision		Students who are blind
		Without MR/DD	With MR/DD	
The great majority of their time (More than 80%)	Pct.	73.1	13.3	33.9
	Std. err.	(5.48)	(8.92)	(12.27)
Less than half of their time	Pct.	9.4	71.9	39.9
	Std. err.	(3.60)	(11.87)	(12.69)
Unweighted n		168	30	38

^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis. The majority of blind students represented in this exhibit do not have MR/DD.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

Table B-8. Percentage of VI students, by IEP goals and presence of MR/DD

Goal on IEP		VI students	
		Without MR/DD	With MR/DD
Increase overall academic performance	Pct.	71.1	52.1
	Std. err.	(3.99)	(9.03)
Increase functional skills	Pct.	32.5	81.3
	Std. err.	(4.1)	(6.2)
Build social skills	Pct.	29.6	90.0
	Std. err.	(4.0)	(4.7)
Unweighted n		341	93

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

Table B-9. Frequency of engagement in selected classroom activities, by presence of MR/DD and instructional placement

		VI students		
		Without MR/DD, in general education classes	Without MR/DD, in special education classes or special schools	With MR/DD, in special education classes or special schools
Teacher’s report of how often student:				
Works independently				
Never/Rarely	Pct.	4.6	12.2	58.1
	Std. err.	(2.4)	(5.7)	(9.2)
Sometimes	Pct.	34.2	37.6	28.9
	Std. err.	(5.5)	(8.4)	(8.4)
Often	Pct.	61.2	50.1	13.1
	Std. err.	(5.6)	(8.6)	(6.3)
Unweighted n		179	105	68
Works in groups				
Never/Rarely	Pct.	9.6	18.4	43.5
	Std. err.	(3.37)	(6.83)	(8.53)
Sometimes	Pct.	53.6	45.3	45.0
	Std. err.	(5.72)	(8.78)	(8.56)
Often	Pct.	36.9	36.3	11.5
	Std. err.	(5.53)	(8.48)	(5.50)
Unweighted n		179	102	66
Participates in class discussion				
Never/Rarely	Pct.	6.6	5.9	42.2
	Std. err.	(2.84)	(4.14)	(8.48)
Sometimes	Pct.	32.1	32.2	28.6
	Std. err.	(5.35)	(8.20)	(7.76)
Often	Pct.	61.3	61.9	29.2
	Std. err.	(5.58)	(8.53)	(7.81)
Unweighted n		179	102	66

See notes at end of table.

(Table continues)

Table B-9. Frequency of engagement in selected classroom activities, by presence of MR/DD and instructional placement—Continued

		VI students		
		Without MR/DD, in general education classes	Without MR/DD, in special education classes or special schools	With MR/DD, in special education classes or special schools
Teacher's report of how often student:				
Completes a writing assignment				
Never/Rarely	Pct.	4.3	9.7	73.0
	Std. err.	(2.32)	(5.20)	(8.36)
Sometimes	Pct.	28.7	44.0	15.9
	Std. err.	(5.19)	(8.72)	(6.88)
Often	Pct.	67.0	46.3	11.1
	Std. err.	(5.40)	(8.75)	(5.92)
	Unweighted n	179	102	66
Takes quizzes or tests				
Never/Rarely	Pct.	2.5	11.0	73.1
	Std. err.	(1.77)	(5.41)	(8.37)
Sometimes	Pct.	41.9	36.8	21.7
	Std. err.	(5.64)	(8.35)	(7.77)
Often	Pct.	55.6	52.3	5.3
	Std. err.	(5.68)	(8.65)	(4.21)
	Unweighted n	180	104	66
Works on projects				
Never/Rarely	Pct.	16.8	34.8	78.8
	Std. err.	(4.29)	(8.39)	(7.93)
Sometimes	Pct.	56.6	46.3	20.0
	Std. err.	(5.68)	(8.78)	(7.76)
Often	Pct.	26.6	19.0	1.2
	Std. err.	(5.07)	(6.90)	(2.12)
	Unweighted n	179	101	63

NOTES: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

Instructional placement is measured by students' language arts placement.

The small number of VI students with MR/DD in general education classes in the SEELS sample does not permit a display of findings for this group.

SOURCE: Data obtained through the SEELS wave 2 language arts teacher questionnaire.

Table B-10. Frequency of engagement in selected reading activities, by presence of MR/DD and instructional placement

		VI students		
		Without MR/DD in general education classes	Without MR/DD in special education classes or special schools	With MR/DD in special education classes or special schools
Teacher's report of how often student:				
Reads aloud				
Never/Rarely	Pct.	17.9	11.4	66.8
	Std. err.	(4.41)	(5.56)	(8.94)
Sometimes	Pct.	44.2	48.1	9.9
	Std. err.	(5.71)	(8.72)	(5.66)
Often	Pct.	37.9	40.5	23.3
	Std. err.	(5.58)	(8.57)	(8.03)
	Unweighted n	178	103	65
Reads silently				
Never/Rarely	Pct.	5.6	14.0	73.3
	Std. err.	(2.66)	(6.01)	(8.46)
Sometimes	Pct.	32.4	51.0	13.9
	Std. err.	(5.42)	(8.65)	(6.61)
Often	Pct.	62.0	34.9	12.8
	Std. err.	(5.62)	(8.25)	(6.39)
	Unweighted n	176	104	64
Reads literature, poetry, plays, or dramas				
Never/Rarely	Pct.	4.9	21.8	81.0
	Std. err.	(2.47)	(7.21)	(7.39)
Sometimes	Pct.	32.1	45.3	9.0
	Std. err.	(5.37)	(8.69)	(5.39)
Often	Pct.	63.1	32.9	10.0
	Std. err.	(5.55)	(8.20)	(5.66)
	Unweighted n	178	103	66

NOTES: Instructional placement refers to the student's language arts placement.

Exhibit includes only students receiving special education services under the IDEA category "visual impairment including blindness."

The small number of VI students with MR/DD in general education classes in the SEELS sample does not permit presentation of findings for this group.

SOURCE: Data obtained through the SEELS wave 2 language arts teacher questionnaire.

Table B-11. Percentage of VI students accessing the curriculum by various means, by severity of visual impairment and presence of MR/DD

		Students with low vision		Students who are blind	
		Without MR/DD	With MR/DD	Without MR/DD	With MR/DD
Means of accessing the curriculum:					
Large-print type	Pct.	81.3	52.1	N/A	N/A
	Std. err.	(3.51)	(9.22)		
	Unweighted n	383	62		
Optical devices	Pct.	66.3	35.8	N/A	N/A
	Std. err.	(4.25)	(8.95)		
	Unweighted n	383	61		
Braille	Pct.	20.8	4.1	93.8	41.5
	Std. err.	(3.64)	(3.65)	(5.20)	(11.15)
	Unweighted n	384	62	58	36
Portable braille notetaker or writer	Pct.	14.4	2.3	83.7	30.6
	Std. err.	(3.17)	(2.75)	(7.99)	(10.60)
	Unweighted n	380	62	58	35
Books on tape	Pct.	28.4	33.7		67.9 ^a
	Std. err.	(5.23)	(10.50)		(10.42)
	Unweighted n	188	40		49
Computer software	Pct.	30.5	48.9		66.4 ^a
	Std. err.	(5.34)	(11.11)		(10.55)
	Unweighted n	188	40		49
Readers (individuals who read to student)	Pct.	8.4	4.8		23.6 ^a
	Std. err.	(3.21)	(4.76)		(9.48)
	Unweighted n	188	40		49

^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 parent interview (large-print type, optical devices, assistive technology, braille, portable braille notetaker or writer) and the SEELS wave 2 school program questionnaire (books on tape, computer software, reader).

Table B-12. Percentage of VI students receiving selected academic accommodations, by severity of visual impairment and presence of MR/DD

Accommodation		Students with low vision		Students who are blind ^a
		Without MR/DD	With MR/DD	
Testing				
More time in taking tests	Pct.	65.6	33.8	64.5
	Std. err.	(5.51)	(10.51)	(10.60)
	Unweighted n	188	40	49
Tests read to student	Pct.	34.4	22.4	53.7
	Std. err.	(5.51)	(9.27)	(11.13)
	Unweighted n	188	40	49
Modified tests	Pct.	35.6	27.3	31.3
	Std. err.	(5.55)	(9.90)	(10.35)
	Unweighted n	188	40	49
Alternative tests/assignments	Pct.	15.2	66.9	39.7
	Std. err.	(4.16)	(10.46)	(10.92)
	Unweighted n	188	40	49
Modified grading standards	Pct.	10.0	46.8	13.7
	Std. err.	(3.47)	(11.09)	(7.69)
	Unweighted n	188	40	49
Instruction				
Additional time to complete assignments	Pct.	54.9	53.8	62.7
	Std. err.	(5.77)	(11.08)	(10.80)
	Unweighted n	188	40	49
Shorter/different assignments	Pct.	23.4	46.2	38.0
	Std. err.	(4.91)	(11.08)	(10.83)
	Unweighted n	188	40	49
Slower-paced instruction	Pct.	18.3	51.6	37.8
	Std. err.	(4.49)	(11.11)	(10.82)
	Unweighted n	188	40	49
More frequent feedback	Pct.	18.2	39.5	27.2
	Std. err.	(4.47)	(10.87)	(9.93)
	Unweighted n	188	40	49
Learning supports				
Physical adaptations	Pct.	64.0	50.0	56.9
	Std. err.	(5.57)	(11.12)	(11.05)
	Unweighted n	188	40	49
Additional academic tutoring	Pct.	30.0	24.5	38.4
	Std. err.	(5.57)	(9.85)	(10.98)
	Unweighted n	164	38	48
Learning strategies/ study skills assistance	Pct.	26.8	24.0	37.0
	Std. err.	(5.39)	(9.79)	(10.90)
	Unweighted n	164	38	48
Teacher aides	Pct.	21.1	77.3	67.3
	Std. err.	(4.73)	(9.32)	(10.47)
	Unweighted n	188	40	49
Computer use	Pct.	22.7	22.2	27.8
	Std. err.	(4.86)	(9.24)	(10.00)
	Unweighted n	188	40	49

^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of MR/DD for this analysis.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

Table B-13. Percentage of VI students receiving selected nonacademic services from schools or districts, by severity of visual impairment and presence of MR/DD

Service		Students with low vision		Students who are blind	
		Without MR/DD	With MR/DD	Without MR/DD	With MR/DD
Communication services (e.g., instruction in braille)	Pct.	17.9	25.6	78.3 ^a	
	Std. err.	(4.67)	(10.00)	(9.30)	
	Unweighted n	164	38	48	
Orientation and mobility services	Pct.	36.2	37.7	90.6	76.7
	Std. err.	(4.52)	(8.84)	(6.31)	(9.50)
	Unweighted n	355	63	58	36
Occupational therapy/ life skills therapy	Pct.	16.9	62.5	32.0	77.6
	Std. err.	(3.36)	(8.74)	(10.13)	(9.77)
	Unweighted n	387	64	57	34
Adaptive physical education	Pct.	21.5	69.6	48.1 ^a	
	Std. err.	(4.99)	(10.54)	(11.28)	
	Unweighted n	164	38	48	
Transportation	Pct.	28.1	56.4	41.8	56.4
	Std. err.	(4.00)	(8.87)	(10.81)	(11.05)
	Unweighted n	390	65	57	37

^a The small number of blind students with school-reported data does not permit disaggregation of findings by presence/absence of coexisting MR/DD for this analysis.

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 parent interview and the SEELS wave 2 school program questionnaire.

Table B-14. Percentage of VI students, by typical grades received in school and presence of MR/DD

		VI students without MR/DD		VI students with MR/DD	
Grades					
Mostly As and Bs	Pct.	46.7		26.4	
	Std. err.	(3.70)		(6.00)	
Mostly Bs and Cs	Pct.	29.9		19.6	
	Std. err.	(3.40)		(5.40)	
Mostly Cs and Ds	Pct.	16.6		38.5	
	Std. err.	(2.80)		(6.60)	
Mostly Ds and Fs	Pct.	6.8		15.5	
	Std. err.	(1.90)		(4.90)	
Unweighted n		551		109	
		VI students without MR/DD		VI students with MR/DD	
		Low vision	Blind	Low vision	Blind
Grades					
Mostly As and Bs	Pct.	47.6	66.6	24.3	32.2
	Std. err.	(4.50)	(11.00)	(8.00)	(10.50)
Mostly Bs and Cs	Pct.	29.4	13.7	13.3	23.4
	Std. err.	(4.10)	(8.00)	(6.40)	(9.50)
Mostly Cs and Ds	Pct.	15.0	17.6	45.6	29.9
	Std. err.	(3.20)	(8.90)	(9.30)	(10.30)
Mostly Ds and Fs	Pct.	8.1	2.1	16.8	14.6
	Std. err.	(2.50)	(3.40)	(7.00)	(7.90)
Unweighted n		388	57	60	37

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCES: Data obtained through the SEELS wave 2 parent interview and the SEELS wave 2 school program questionnaire.

Table B-15. Percentage of VI students, by standardized test score quartile and presence of MR/DD

		VI students	
		Without MR/DD	With MR/DD
Calculation			
Top quartile	Pct.	20.6	#
	Std. err.	(3.94)	N/A
Next-to-top quartile	Pct.	17.8	0.5
	Std. err.	(3.72)	(1.25)
Second-lowest quartile	Pct.	29.8	10.5
	Std. err.	(4.46)	(5.75)
Lowest quartile	Pct.	31.9	89.1
	Std. err.	(4.54)	(5.85)
	Unweighted n	318	67
Passage comprehension			
Top quartile	Pct.	12.4	#
	Std. err.	(3.21)	N/A
Next-to-top quartile	Pct.	12.3	2.1
	Std. err.	(3.20)	(2.61)
Second-lowest quartile	Pct.	30.0	4.1
	Std. err.	(4.47)	(3.59)
Lowest quartile	Pct.	45.3	93.8
	Std. err.	(4.85)	(4.37)
	Unweighted n	319	71

Estimate rounds to zero.

NOTES: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SEELS administered the WJ III only to students who met particular screening criteria, including basic literacy (for print or braille). Seven percent of VI students without MR/DD and 63% of VI students with MR/DD did not meet the screening criteria and were assessed by teachers, who completed the Scales of independent Behavior-Revised (SIB-R; Bruininks, et al., 1996). These students’ national percentile scores for the “Community Living Skills” section of the SIB-R were used to impute their calculation scores, and their national percentile scores for the “Social Interaction Skills” section of the SIB-R were used to impute their passage comprehension scores. These two SIB-R sections included “money and value” components and “language comprehension” components, which generally targeted the types of skills and abilities assessed through the WJ III “calculation” and “passage comprehension” subtests, respectively. Ninety-seven percent of the VI students who were assessed for SEELS using the SIB-R scored in the lowest national quartile on the “Community Living Skills” section, and 94% scored in the lowest national quartile on the “Social Interaction Skills” section. Their raw scores on the “money and value” and “language comprehension” components, for which no percentile scores were available, were very low as well.

SOURCE: Data obtained through the SEELS wave 2 direct assessment and SEELS wave 2 alternate assessment.

Table B-16. Percentage of VI students, by ability to perform selected mobility tasks and severity of visual impairment

		Students with low vision	Students who are blind
Teacher’s report of how well student can:			
Travel indoors using rote/learned routes			
Very well	Pct.	92.7	68.5
	Std. err.	(3.47)	(11.85)
Pretty well	Pct.	5.3	25.3
	Std. err.	(5.30)	(25.30)
Not very well	Pct.	2.0	6.2
	Std. err.	(1.85)	(6.17)
	Unweighted n	135	41

See note at end of table.

(Table continues)

Table B-16. Percentage of VI students, by ability to perform selected mobility tasks and severity of visual impairment—Continued

		Students with low vision	Students who are blind
Teacher's report of how well student can:			
Travel to other school areas or other buildings using rote learned routes			
Very well	Pct.	82.5	44.2
	Std. err.	(5.22)	(13.08)
Pretty well	Pct.	11.6	42.7
	Std. err.	(4.39)	(13.03)
Not very well	Pct.	6.0	13.0
	Std. err.	(3.26)	(8.87)
	Unweighted n	129	39
Create new routes between familiar places indoors			
Very well	Pct.	69.6	14.7
	Std. err.	(6.16)	(10.33)
Pretty well	Pct.	24.2	57.8
	Std. err.	(5.74)	(14.41)
Not very well	Pct.	6.2	27.5
	Std. err.	(3.22)	(13.03)
	Unweighted n	134	33
Orient self to an unfamiliar room			
Very well	Pct.	57.7	15.1
	Std. err.	(6.50)	(9.95)
Pretty well	Pct.	37.1	57.1
	Std. err.	(6.36)	(13.74)
Not very well	Pct.	5.1	27.8
	Std. err.	(2.90)	(12.44)
	Unweighted n	141	36
Execute a route, given a set of verbal directions, to an unfamiliar location within one building			
Very well	Pct.	61.7	16.8
	Std. err.	(6.62)	(10.07)
Pretty well	Pct.	26.3	43.5
	Std. err.	(5.99)	(13.35)
Not very well	Pct.	12.1	39.7
	Std. err.	(4.43)	(13.17)
	Unweighted n	132	37
Teacher's report of how well student can:			
Execute a route, given a set of verbal directions, to an unfamiliar location in another building			
Very well	Pct.	43.5	6.9
	Std. err.	(7.37)	(7.53)
Pretty well	Pct.	27.8	27.0
	Std. err.	(6.66)	(13.20)
Not very well	Pct.	28.7	66.2
	Std. err.	(6.73)	(14.07)
	Unweighted n	109	32

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: Data obtained through the SEELS wave 2 school program questionnaire.

Table B-17. Percentage of VI students engaging in selected nonschool activities, by presence of MR/DD

		VI students	
		Without MR/DD	With MR/DD
In past 12 months:			
Student belonged to an organized group	Pct.	69.5	35.0
	Std. err.	(3.77)	(6.64)
	Unweighted n	455	103
Student has been invited to social activities by other children	Pct.	86.3	52.7
	Std. err.	(2.93)	(7.69)
	Unweighted n	429	87
Friends called student on the phone at least once a week	Pct.	56.9	11.5
	Std. err.	(4.22)	(5.00)
	Unweighted n	427	85

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category "visual impairment including blindness."

SOURCE: Data obtained through the SEELS wave 2 parent interview.

Table B-18. Percentage of VI students, by selected parent expectations and presence of MR/DD

		VI students	
		Without MR/DD	With MR/DD
Students whose parents believe they will...			
Graduate from high school			
Definitely will	Pct.	77.2	14.6
	Std. err.	(3.45)	(5.04)
Probably will	Pct.	17.6	32.3
	Std. err.	(3.13)	(6.67)
Probably will not	Pct.	2.5	21.4
	Std. err.	(1.28)	(5.85)
Definitely will not	Pct.	2.7	31.7
	Std. err.	(1.34)	(6.64)
	Unweighted n	450	98
Attend school after high school			
Definitely will	Pct.	50.2	5.6
	Std. err.	(4.13)	(3.25)
Probably will	Pct.	39.2	27.4
	Std. err.	(4.03)	(6.30)
Probably will not	Pct.	4.8	10.2
	Std. err.	(1.76)	(4.28)
Definitely will not	Pct.	5.8	56.7
	Std. err.	(1.93)	(7.00)
	Unweighted n	447	99

See note at end of table.

(Table continues)

**Table B-18. Percentage of VI students, by selected parent expectations and presence of MR/DD—
Continued**

		VI students	
		Without MR/DD	With MR/DD
Extent to which parents expect that student will...			
Graduate from a 4-year college			
Definitely will	Pct.	33.6	0.8
	Std. err.	(3.91)	(1.25)
Probably will	Pct.	48.6	18.8
	Std. err.	(4.14)	(5.51)
Probably will not	Pct.	7.0	11.2
	Std. err.	(2.12)	(4.46)
Definitely will not	Pct.	10.8	69.2
	Std. err.	(2.57)	(6.52)
	Unweighted n	444	99
Get a paid job			
Definitely will	Pct.	71.3	14.9
	Std. err.	(3.73)	(5.09)
Probably will	Pct.	24.2	38.4
	Std. err.	(3.53)	(6.95)
Probably will not	Pct.	2.3	17.1
	Std. err.	(1.24)	(5.38)
Definitely will not	Pct.	2.3	29.6
	Std. err.	(1.24)	(6.53)
	Unweighted n	448	97
Live away from home without supervision			
Definitely will	Pct.	44.7	5.0
	Std. err.	(4.10)	(3.09)
Probably will	Pct.	40.2	20.5
	Std. err.	(4.05)	(5.74)
Probably will not	Pct.	10.4	31.1
	Std. err.	(2.52)	(6.58)
Definitely will not	Pct.	4.8	43.4
	Std. err.	(1.76)	(7.05)
	Unweighted n	447	98

NOTE: Exhibit includes only 8- to 15- year-old students receiving special education services under the IDEA category “visual impairment including blindness.”

SOURCE: Data obtained through the SEELS wave 2 parent interview.