

5. THE CLASSROOM CONTEXTS OF SECONDARY SCHOOL STUDENTS WITH DISABILITIES

By Mary Wagner, Camille Marder, Renée Cameto, and Phyllis Levine

Chapter 4 demonstrated that secondary school students with disabilities take a wide range of academic, vocational, and other nonacademic courses, and the majority experience both general and special education classroom settings. Experiences in those classrooms can differ greatly, of course, because of such factors as the content of the courses taught (e.g., mathematics vs. prevocational education) and the grade level of the course (e.g., middle school vs. high school). Other factors that also help define differences in classroom experiences involve the characteristics of the adult and student participants in those classes.

This chapter describes the following aspects of the classroom contexts within which students with disabilities take courses:

- Subject area, including setting of vocational education courses
- Performance level of general education academic courses
- Student and adult classroom participants
- Communication method
- Characteristics of general education teachers.

When data permit, comparisons are made between general education academic, special education, and vocational education classes.

Subject Area

NLTS2 sought information on the experiences of students with disabilities in a wide variety of courses and settings. To get a representative picture of the range of students' general education academic classroom experiences (if students take such classes), NLTS2 surveyed the teacher of the first general education academic class each student took in the week. Similarly, to learn about a broad range of special education classes, respondents to the student's school program survey were asked to select a special education class for the student about whom the survey was conducted. If that staff person taught the student in a nonvocational special education class, he or she was instructed to report about that class. If the respondent was not a student's special education teacher, the respondent was instructed to select the student's first nonvocational special education class in the week and obtain classroom information for that class from its teacher. Respondents were not asked to report the subject area of vocational education classes. However, they were asked to indicate whether the vocational education course about which they were reporting was a general education or special education course.

The general education academic classroom experiences that are described here about equally represent experiences in language arts (28%), mathematics (24%), science (22%), and social studies courses (22%; Exhibit 5-1). Few foreign language or other academic courses are represented (4% and 1%), and this subject area distribution does not differ by grade level.

**Exhibit 5-1
FOCUS OF CLASSES TAKEN BY
STUDENTS WITH DISABILITIES**

	Percentage	Standard Error
Students with disabilities whose general education academic class is:		
Language arts	27.5	2.4
Mathematics	23.7	2.3
Science	21.6	2.2
Social studies	22.3	2.2
Foreign language	3.9	1.0
Other	.9	.5
Students whose special education class focuses on:		
Academic subject	60.8	2.4
Study skills	24.3	2.1
Life skills	8.3	1.4
Basic academic skills	6.7	1.2
Vocational education classes		
Students whose vocational education course is taken in a:		
General education class	70.6	2.3
Special education class	34.8	2.4
Sources: NLTSS2 Wave 1 student's school program and general education teacher surveys.		

For the majority of students (61%), experiences in special education classes¹ are reported for courses that deal with academic subjects, such as language arts or math. About one-quarter of students (24%) have experiences reported for special education classes that primarily provide help with homework, study skills, or test taking. Significantly fewer students have experiences reported for special education classes that focus on basic academic (7%) or life skills, such as independent functioning (8%). (These figures should not be interpreted as the percentage of students with disabilities who take such classes, but rather as the distribution of the kinds of general and special education classes that are described in Chapters 6 and 8.)

Having special education classroom experiences reported for an academic subject class is particularly likely for middle school students² (78% vs. 56% to 62% across high school grade levels, $p < .05$). In contrast, high school students, particularly freshmen, are more likely than middle school students to

have classroom experiences reported for a study skills class (32% of freshmen vs. 11% of middle school students, $p < .01$).

Vocational education students with disabilities are about twice as likely to take those courses in a general education class as in a special education class (71% vs. 35%, $p < .001$). Middle school students with disabilities who take vocational courses are particularly likely to take them in general education classes (88% vs. 66% for juniors or seniors).

Disability Variations in Subject Area

There are no significant differences across disability categories in the kinds of general education academic classes represented in this report. Therefore, any differences between categories in general education academic classroom characteristics or experiences are likely to reflect disability differences, not different mixes of courses being described.

However, the kinds of special education courses that are described do differ across categories (Exhibit 5-2). Students with all kinds of disabilities are present in each type of special education class, but the emphasis differs widely across disability categories. For example, between 60% and 68% of students with learning disabilities, emotional disturbances, traumatic brain injuries,

¹ Readers should note that special education classes described in this chapter do not include vocational education classes taught in special education settings; those are described as part of vocational education classes.

² For convenience, grades 7 and 8 are referred to as middle school grade levels and grades 9 and above as high school grade levels.

Exhibit 5-2
SPECIAL EDUCATION SUBJECT AREA FOCUS, BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage in a special education class focused on:												
Academic subject	62.9 (3.8)	61.9 (4.7)	53.5 (3.4)	67.7 (4.5)	64.0 (5.4)	39.2 (8.0)	53.6 (4.4)	60.4 (3.8)	34.3 (3.6)	61.0 (7.2)	35.9 (4.0)	33.0 (9.3)
Life skills	1.7 (1.0)	4.0 (1.9)	27.5 (3.1)	8.3 (2.7)	2.3 (1.7)	15.3 (5.9)	17.9 (3.4)	6.1 (1.9)	42.9 (3.8)	15.9 (5.4)	41.4 (4.1)	36.6 (9.5)
Basic academic skills	5.0 (1.7)	6.6 (2.4)	15.6 (2.5)	1.5 (1.2)	4.3 (2.3)	10.7 (5.1)	6.0 (2.1)	3.8 (1.5)	10.9 (2.4)	12.0 (4.8)	18.3 (3.2)	7.6 (5.2)
Study skills	30.4 (3.6)	27.5 (4.3)	3.5 (1.3)	22.5 (4.1)	29.4 (5.1)	34.7 (7.8)	22.4 (3.7)	29.7 (3.5)	11.8 (2.5)	11.1 (4.6)	4.4 (1.7)	22.7 (8.3)

Source: NLTS2 Wave 1 student's school program survey.
Standard errors are in parentheses.

or speech, hearing, or other health impairments have experiences reported for special education classes that teach an academic subject. In addition, 28% or more of students with learning disabilities, or speech, hearing, visual, or other health impairments are in classes that provide help with homework, testing, or study skills.

In contrast, about one-third of students with autism, multiple disabilities, or deaf-blindness have experiences reported for subject-specific academic classes ($p < .01$ or $p < .001$ compared with students with learning disabilities). Instead, a significantly larger proportion of these students (37% to 43%), as well as students with mental retardation (28%), have experiences reported for classes that focus on acquiring functional life skills ($p < .001$ compared with students with learning disabilities). Larger proportions of students with mental retardation, autism, or multiple disabilities (11% to 18%) than other kinds of disabilities are in special education classes that focus on basic academic skills ($p < .05$ and $p < .001$ compared with students with learning disabilities). Therefore, differences across disability categories in special education classroom experiences will reflect these differences in the kinds of special education courses being described.

Similarly, differences across disability categories in vocational education classroom experiences will reflect variations in the likelihood that students in different disability categories take their vocational education courses in general or special education classes (Exhibit 5-3). The percentage of vocational education students with disabilities who take those courses in general education classrooms ranges from 28% to 85% across disability categories ($p < .001$). General education classrooms are by far the most common setting for vocational education students with learning disabilities, emotional disturbances, or speech, hearing, orthopedic, or other health impairments. From 60% to 85% of vocational education students in these categories take one or more vocational courses in general education classrooms. In contrast, vocational education students with mental retardation, autism, or multiple disabilities are much more likely to take their courses in special education classes; from 65% to 83% do so. Students with visual impairments or traumatic brain injuries who take vocational education are about equally likely to take those courses in general or special education settings. Settings other than general and

Exhibit 5-3

INSTRUCTIONAL SETTING OF VOCATIONAL EDUCATION CLASSES, BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties
Percentage of vocational education students with disabilities taking course in:											
General education classes	80.9 (3.2)	84.6 (3.2)	43.7 (3.7)	62.3 (5.0)	61.3 (4.8)	52.6 (5.9)	60.2 (4.5)	75.7 (3.5)	30.9 (3.6)	63.6 (7.4)	27.5 (3.8)
Special education classes	24.2 (3.5)	24.0 (3.8)	65.4 (3.5)	38.6 (5.1)	43.3 (4.9)	52.7 (5.9)	41.2 (4.5)	30.4 (3.8)	76.4 (3.3)	46.5 (7.7)	75.0 (3.7)
Community or other settings	7.0 (2.1)	2.9 (1.5)	22.9 (2.4)	9.8 (3.1)	1.9 (1.3)	7.1 (3.1)	10.0 (2.7)	8.0 (2.2)	19.1 (3.0)	11.7 (5.0)	17.0 (3.2)

Source: NLTS2 Wave 1 student's school program survey.

Note: There are too few students with deaf-blindness in vocational education classes to report separately.

Standard errors are in parentheses.

special education classrooms are particularly common for students with mental retardation, autism, or multiple disabilities (17% to 23% of those students take vocational education in such settings).

Demographic Variations in Subject Area

There are no differences in the subject areas of general education academic classes among students with disabilities who differ in demographic characteristics. However, among students in special education classes, the experiences of white students with disabilities are more likely to be reported for study skills classes (28%) than those of African-American students (18%, $p < .05$). Similarly, a study skills class is more likely to be the kind of special education classroom experience reported for wealthier students with disabilities (34% of students from households with incomes greater than \$50,000) than lower-income students (17% of students from households with incomes of \$25,000 or less, $p < .001$). Among vocational education students with disabilities, African-American students are the least likely to be in general education classrooms for vocational education—41% compared with 58% of white students ($p < .05$). Hispanic and white students with disabilities do not differ in the likelihood of taking vocational courses in general or special education classrooms. Gender differences are apparent, however; boys who take vocational education are more likely than girls who do so to have those courses be in general education classes (74% vs. 63%, $p < .05$).

Performance Level

The preceding section demonstrated the range of academic courses students with disabilities take in general education classes. NLTS2 also is interested in understanding the performance level of those courses—whether they are courses whose students generally function at grade level, or whether students with disabilities are tracked into lower-performing general education academic classes.

The majority of students with disabilities (82%) who take general education academic classes are in classes in which the majority of students perform at grade level (Exhibit 5-4); 16% are in

Exhibit 5-4
PERFORMANCE LEVEL OF GENERAL EDUCATION ACADEMIC CLASSES OF STUDENTS WITH DISABILITIES, BY SUBJECT AREA AND GRADE LEVEL

	All Academic Classes	Subject Area				Grade Level			
		Language Arts	Mathematics	Science	Social Studies	7th or 8th Grade	9th Grade	10th Grade	11th or 12th Grade
Percentage of students in classes:									
At standard grade level	81.6 (2.0)	81.3 (4.0)	74.1 (5.2)	83.0 (4.2)	88.9 (3.4)	90.8 (4.1)	78.0 (4.7)	77.8 (4.3)	83.4 (3.4)
Below standard grade level	16.1 (2.1)	16.6 (3.8)	25.1 (5.1)	15.1 (4.0)	7.4 (2.8)	.5 (1.0)	1.2 (1.2)	3.0 (1.8)	3.3 (1.6)
Advanced placement/honors	2.3 (.8)	2.1 (1.4)	.8 (1.0)	1.9 (1.5)	3.7 (2.0)	8.7 (4.0)	20.8 (4.6)	19.2 (4.1)	13.3 (3.1)

Source: NLTS2 Wave 1 general education teacher survey.

Note: There are too few students with deaf-blindness in general education academic classes to report separately.

Standard errors are in parentheses.

classes that teachers describe as below standard grade level, and 2% are in advanced placement or honors classes. The percentages of students receiving special education who are in general education academic classes at grade level range from 74% in mathematics classes to 89% in social studies/humanities classes ($p < .05$). Regardless of subject area, most students who are not in classes at grade level are in classes below grade level; percentages range from 25% of students in mathematics classes to 7% of students in social studies/humanities classes ($p < .05$). The percentage of students with disabilities in classes at grade level is highest for students in 7th and 8th grades (91%), then declines to 78% in 9th and 10th grades ($p < .05$), but rises again to 83% for juniors and seniors.

There are some notable differences in general education academic class performance level across disability categories (Exhibit 5-5). The percentage of students with disabilities who are in general education academic classes that are performing at grade level ranges from 70% of

Exhibit 5-5
PERFORMANCE LEVEL OF GENERAL EDUCATION ACADEMIC CLASSES, BY DISABILITY CATEGORY

	Learning Disability	Speech/Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities
Percentage of students with disabilities in general education academic classes that are:											
At standard grade level	82.9 (2.7)	78.6 (3.0)	76.5 (6.4)	81.7 (4.6)	82.8 (3.7)	69.6 (5.9)	81.2 (3.2)	76.5 (3.1)	74.0 (5.6)	71.3 (7.2)	77.4 (7.8)
Below grade level	15.7 (2.7)	14.6 (2.6)	23.3 (6.4)	13.2 (4.0)	10.3 (3.0)	10.6 (3.9)	13.2 (2.8)	19.1 (2.9)	14.5 (4.5)	27.4 (7.1)	20.5 (7.6)
Advanced placement/honors courses	1.4 (.9)	6.8 (1.9)	.2 (.7)	5.1 (2.6)	6.9 (2.5)	19.8 (5.1)	5.7 (1.9)	4.4 (1.5)	11.5 (4.1)	1.4 (1.9)	2.1 (2.7)

Source: NLTS2 Wave 1 general education teacher survey.

Note: There are too few students with deaf-blindness in general education academic classes to report separately.

Standard errors are in parentheses.

students with visual impairments to 83% of students with learning disabilities or hearing impairments ($p < .05$). Youth with hearing impairments are the least likely to be in classes that are functioning below grade level (10%); students with mental retardation, traumatic brain injuries, or multiple disabilities are more than twice as likely to be in such classes (20% to 27%, $p < .05$). Very small percentages of students in most categories are in advanced placement or honors classes, but 12% of students with autism and 20% of students with visual impairments are in such classes ($p < .001$ comparing youth with learning disabilities and visual impairments).

There are few differences in class performance level by students' demographic characteristics. One is that boys are more likely than girls to be in classes that are performing at grade level (85% vs. 76%, $p < .05$), and girls are more likely to be in classes that are below the standard grade level (22% vs. 13%, $p < .05$).

Classroom Participants

Students

Research suggests the important influence of class size on the effectiveness of the instruction and learning that go on in a classroom. Smaller class sizes have been associated with positive student outcomes (Finn, 1998; Greenwald et al., Mosteller, 1995; National Center for Education Statistics, 2000; 1996; Pritchard, 1998), particularly for disadvantaged and minority students (Grissmer et al, 1998; Hanushek, 1998; Krueger, 1998; Mosteller, 1995). Many teachers and parents believe that small class sizes also improve the outcomes of special education students (Folger, 1989; Johnston, 1989; McCrea, 1996; Nye et al., 1992), particularly if they create an environment that promotes students' engagement and inclusion or allow teachers to tailor instruction more effectively to the diverse needs of learners (Achilles & Finn, 2000; Finn, Gerber, Achilles, & Boyd-Zaharias, 2001; Harris & Graham, 1996; Slavin, 1990).

On average, the general education academic classes of students with disabilities include 24 students (Exhibit 5-6), as is typical of academic classes nationally (National Center for Education Statistics, 2003). Their classes are somewhat smaller than the typical class in their schools, which is 27 students, as reported in Chapter 3. Classes contain an average of 19 general education students and 5 students who receive special education services.

Exhibit 5-6
SIZE OF CLASSES OF STUDENTS WITH DISABILITIES, BY TYPE OF CLASS

	General Education Academic Class	Special Education Class	Vocational Education Class		
			Any Vocational Education Class	General Education Vocational Class	Special Education Vocational Class
Average number of:					
All students	24 (.4)	10 (.2)	20 (.9)	22 (.8)	12 (.6)
General education students	19 (.4)	0	14 (.6)	18 (.5)	2 (.6)
Special education students	5 (.2)	10 (.2)	6 (.3)	4 (.2)	10 (.5)

Sources: NLTS2 Wave 1 general education teacher and student's school program surveys.
Standard errors are in parentheses.

Special education classes are much smaller than general education academic classes, averaging 10 students ($p < .001$). Small classes generally are needed for students to receive the kinds of personal attention and individualized instruction that may be required for them to achieve their IEP goals. Research suggests that lower student-teacher ratios help meet student needs because they make specific types of instruction, assessment, presentation, communication, and individualization more feasible than do larger groups (Achilles, Finn, & Bain, 1998; Achilles & Finn, 2000; Finn et al., 1990; Gersten & Dimino, 2001; Thurlow, Ysseldyke, & Wotruba, 1989). However, the size of special education classes varies with its subject focus. Academic subject classes average almost 11 students, and classes that teach basic academic skills average 10 students; classes that focus on developing study skills have 8 students, on average ($p < .001$ and $p < .05$ compared with academic subject and basic academic classes, respectively).

Vocational education classes fall between general education and special education classes in size, averaging 20 students—14 general education students and 6 students who receive special education services. However, the size differences noted between general education academic classes and special education classes also are apparent for vocational education courses. Overall, vocational education courses in general education classes average 22 students, compared with 12 students in special education vocational classes ($p < .001$).

Adults

Regardless of type, classes include one or more teachers, who are the instructional leaders of the class. Teachers may also be supported by one or more classroom aides. When classes include students with disabilities, they also may include instructional assistants who are assigned to individual students or specialists to meet the needs of those students. The presence of these adults in the classroom varies by the type of class (Exhibit 5-7).

As expected, almost all students with disabilities who are in general education academic classes have general education teachers, and in most cases (77%) they are the only teacher in the class. Approximately one-fifth of students with disabilities are in general education academic classes that have both general education and special education teachers present. Similarly, virtually all students who take special education classes have a special education teacher, but only 6% of students in special education classes also have a general education teacher in class. Because vocational education students with disabilities are more likely to take those courses in general than special education classes, they also are more likely to have a general education than a special education teacher (72% vs. 32%).

Having adults in the classroom other than a teacher is least likely in general education academic classes. For example, 12% of students with disabilities who take such classes have classroom aides in them, compared with more than one-fourth of students who take vocational education and more than half of students who take courses in special education classrooms ($p < .001$ for both comparisons). Among special education classes, students who are in classes that focus on basic academic or life skills are more likely to have adults other than the teacher in the classroom than students in other kinds of special education classes. For example, 76% of students in classes that teach life skills or basic academics have classroom aides, compared with 48% of students in academic subject special education classes and 45% of those in classes that focus on study skills ($p < .001$). Within vocational education classes, a typical general education

**Exhibit 5-7
ADULTS IN CLASSES OF STUDENTS WITH
DISABILITIES, BY TYPE OF CLASS**

	General Education Academic Class	Special Education Class	Vocational Education Class
Percentage in classes with			
General education teacher	97.7 (.8)	6.0 (1.2)	72.0 (2.4)
Special education teacher	22.3 (2.3)	97.8 (.7)	31.7 (2.5)
Classroom aide(s)	12.3 (1.8)	51.5 (2.5)	27.4 (2.4)
1-to-1 instructional assistants	4.3 (1.1)	10.1 (1.5)	8.3 (1.5)
Specialists	1.9 (.7)	4.2 (1.0)	5.5 (1.2)
Adult volunteers	.2 (.2)	1.2 (.5)	3.6 (1.0)
Average students per adult	21.2 (.4)	6.5 (.2)	11.5 (.7)

Sources: NLTS2 Wave 1 general education teacher and student's school program surveys.
Standard errors are in parentheses.

vocational class does not include adults other than the general education teacher, whereas a special education vocational classroom typically includes at least one aide, assistant, specialist, or adult volunteer assisting in the classroom.

These staffing arrangements result in an average of 21 students per adult in general education academic classes—almost twice as many as in vocational education classes (12; $p < .001$) and more than three times as many as in special education classes (6, $p < .001$). However, the average number of students per adult ranges within special education classes from 5 in classes that focus on basic academic or life skills to 6 in those that teach study skills and 7 in special education academic subject classes.

Within vocational education, those in general education classes also have more students per adult (15) than students in special education classes (5, $p < .001$).

There are no differences in classroom participants across grade levels for general education academic or special education classes. However, vocational education classes are larger for middle school students with disabilities (an average of 23) than for seniors (an average of 18, $p < .05$), consistent with the lower likelihood of older students being in general education vocational classes, as reported in Chapter 4. The average number of students per teacher also is higher in vocational classes of middle school students (14) than seniors (11, $p < .05$).

Disability Variations in Classroom Participants

General education academic classes have the highest average number of students per adult and special education classes have the lowest, regardless of disability category (Exhibit 5-8). Students with disabilities who take general education academic classes are in classes that average between 18 and 23 students per adult, and students in most categories are in classes in which 20% or more of the students in class receive special education services. Vocational education classes average 4 to 17 students per adult, and special education classes average between 2 and 6 students per adult.

Among special education classes, the categories of students who are most likely to have their experiences reported for life skills classes (e.g., multiple disabilities and autism) also are the categories with the fewest students per adult. Similarly, among vocational education classes, the lowest numbers of students per adult are in categories that are most likely to have their vocational education courses be in special education classes (e.g., mental retardation, autism, and

Exhibit 5-8
CLASSROOM PARTICIPANTS, BY TYPE OF CLASS AND DISABILITY CATEGORY

	Learning Disability	Speech/Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities
Average students per adult in:											
General education academic classes	21.2 (.6)	22.2 (.6)	20.9 (1.3)	21.5 (.9)	22.8 (.8)	22.3 (1.0)	22.5 (.7)	20.1 (.6)	22.2 (1.0)	18.2 (1.5)	18.0 (1.4)
Special education classes	6.1 (.5)	5.5 (.5)	3.8 (.4)	4.6 (.5)	4.3 (.6)	3.4 (.9)	3.9 (.5)	4.9 (.4)	2.9 (.4)	4.5 (.6)	2.4 (.4)
Vocational education classes	17.3 (1.0)	15.9 (1.2)	6.7 (1.2)	11.1 (1.5)	15.6 (1.5)	10.0 (2.1)	8.1 (1.4)	13.4 (1.4)	4.3 (1.0)	9.4 (2.1)	3.5 (1.4)
Average percentage of students in general education academic classes who receive special education services	22.0 (1.2)	20.8 (1.3)	23.3 (2.7)	20.6 (2.0)	15.3 (1.4)	15.3 (2.2)	17.3 (1.4)	21.6 (1.3)	16.9 (2.1)	26.5 (3.2)	29.1 (4.1)

Sources: NLT2 Wave 1 general education teacher and student's school program surveys.

Note: There are too few students with deaf-blindness in general education academic classes to report separately. Standard errors are in parentheses.

multiple disabilities). In fact, regardless of the type of class, students with multiple disabilities are in classes with the fewest students per adult (18 students in general education academic classes, 2 in special education classes, and 4 in vocational education classes). In contrast, students with learning disabilities or speech impairments tend to have among the largest numbers of students per adult across types of classes.

Students with hearing or visual impairments who take general education academic classes have somewhat smaller percentages of students who receive special education in them—on average, 15% ($p < .01$ and $p < .001$ compared with students with learning disabilities). In contrast, students with traumatic brain injuries or multiple disabilities tend to have a higher proportion of students with disabilities in their classes (26% and 29%, $p < .01$ compared with students with hearing or visual impairments).

Demographic Variations in Classroom Participants

In most respects, the participants in classes of students with disabilities do not differ markedly for students with different demographic characteristics. An exception is that, compared with white students, Hispanic students tend to be in general education academic classes with a smaller proportion of students who receive special education services. On average, 23% of students in the general education classes of white students with disabilities receive special education; the comparable percentage for Hispanic students with disabilities is 18% ($p < .05$).

Communication Method

Speech is the teacher's sole communication mode for 97% of students with disabilities who take general education academic classes; the remainder are in classes where sign language is used in conjunction with speech. Eighty-three percent of students who take special education classes also have teachers who solely use speech in those classes, as is the case for students with

disabilities who take vocational education courses. Thus, in both kinds of classes, 17% of students have teachers who use a combination of manual and voice communication. Among special education classes, multiple communication methods are more common in classes that focus on basic academic or life skills (28%) than classes with an academic focus (14%, $p < .05$) or those focused on study skills (15%, $p < .05$).

Not surprisingly, the use of sign language in the classroom varies across disability categories. For example, in special education classes, students with hearing impairments, multiple disabilities, or deaf-blindness are significantly more likely to have sign language used in their classes along with voice (29% to 38%) than other students (e.g., 16% for students with learning disabilities, $p < .05$).

General Education Academic Teacher Characteristics

When the educational process is working effectively, teachers are crucial partners in learning for students. Their characteristics and experience can influence in important ways the dynamics of the educational interchange with students. NLTS2 asked general education academic class teachers who had students with disabilities in their courses to describe several aspects of their background, including their racial/ethnic group, teaching credential, and teaching experience.³

The teachers of the general education academic classes of students with disabilities are much less racially and ethnically diverse than the students themselves. Whereas 62% of secondary students with disabilities are white (Marder, Levine, Wagner, & Cardoso, 2003), almost 90% of students with disabilities who take general education academic classes have teachers who are white (Exhibit 5-9). This racial/ethnic discrepancy is somewhat larger than that for students in the general population nationally; 66% of them are white, as are 85% of their teachers (National Center for Education Statistics, 2002). A racial/ethnic disparity between teachers and students has been shown to relate to lower teacher perceptions of students' performance (Dee, 2001), particularly between white teachers and African-American students (Oates, 2003), although it has not been demonstrated to limit what students objectively learn (Ehrenbert, Goldhaber, & Brewer, 1995).

Two proxies for teacher quality—credentials and experience—have been found to be associated with positive student outcomes (Darling-Hammond, 2000; Goldhaber & Brewer, 1997; Monk & King, 1994). Having teachers who have concentrated coursework in the subject they teach and who have more experience is related to higher student academic performance, particularly at the high school level (Rice, 2003).

Most students with disabilities have general education academic teachers who have credentials in their subject area or who have substantial teaching experience. Ninety-six percent of students with disabilities who take general education academic classes have teachers who hold credentials to teach those classes. This is a higher rate than the average for their schools reported

³ Items related to teachers' characteristics were included in the general education academic teacher survey because it was clear that the respondent had direct classroom contact with NLTS2 students. In contrast, the student's school program survey did not include items on respondent characteristics because there was no assurance that school staff respondents had direct classroom contact with sample members. Therefore, the characteristics of respondents to the student's school program survey would not necessarily be expected to be related to students' classroom experiences or performance.

**Exhibit 5-9
CHARACTERISTICS OF GENERAL
EDUCATION ACADEMIC TEACHERS OF
STUDENTS WITH DISABILITIES**

	Number or Percentage	Standard Error
Percentage whose teacher is:		
White	87.8	1.8
African American	5.3	1.2
Hispanic	4.0	1.1
Other racial/ethnic background	2.9	.9
Percentage of students with teachers who are credentialed to teach their class	96.1	1.0
Average number of years teaching	14.1	.6
Percentage whose teacher has been teaching:		
4 years or less	23.4	2.3
5 to 9 years	20.4	2.2
10 to 19 years	24.5	2.3
20 years or more	31.6	2.5
Average number of years teaching students with disabilities	10.2	.5
Percentage whose teacher has been teaching students with disabilities:		
4 years or less	32.7	2.5
5 to 9 years	23.1	2.3
10 to 19 years	27.0	2.4
20 years or more	17.2	2.0
Percentage whose teachers agree/disagree that they are adequately trained to teach students with disabilities		
Strongly agree	15.4	1.9
Agree	53.1	2.7
Disagree/strongly disagree	31.5	2.5
Source: NLTS2 Wave 1 general education teacher survey.		

in Chapter 3 (88%), suggesting that perhaps students with disabilities who take general education academic classes are assigned to classes with more qualified teachers. Teachers have an average of 14 years of teaching experience, although their experience ranges widely. For example, almost one-fourth of students with disabilities in general education academic classes have teachers with less than 5 years experience, whereas almost one-third have teachers who have been teaching for at least 20 years.

Teachers tend to have somewhat less experience teaching students who receive special education services, although they average 10 years of experience with this population. Although one-third of students have teachers with less than 5 years experience teaching students with disabilities, twice as many students have general education teachers who report feeling adequately trained to teach students with special needs; 15% strongly agree and 53% agree with the statement “I have adequate training for teaching students with disabilities.” These perceptions of adequacy exist despite the fact that only about one-third of teachers have had at least 8 hours of professional development related to working with

students with disabilities in the preceding 3 years.

There are no differences in teachers’ race/ethnicity, total years of teaching, or years of teaching special education students across the various subject areas of general education academic classes. However, there are differences in the percentages of teachers who hold credentials to teach the class. Whereas 99% of students with disabilities in general education language arts or social studies/humanities classes have teachers who hold credentials to teach their classes, 93% of students in mathematics or science classes have teachers who hold such credentials ($p < .05$).

Racial/ethnic background is the only teacher characteristic considered in this chapter that differs across disability categories. Proportions of students whose teachers are white range from 81% (students with emotional disturbances) to 92% (students with other health impairments or mental retardation, $p < .05$). This variation appears to be unrelated to the differences across categories in the racial/ethnic distribution of students with disabilities themselves. The two disability categories with the highest proportions of African American students are mental

retardation and emotional disturbance (Marder, Levine, & Wagner, 2003), which have the lowest and highest percentages of teachers who are white.

Nonetheless, African-American and Hispanic students with disabilities are less likely than white students to have white teachers; 95% of white students with disabilities have white teachers, compared with 75% of African-American students and 72% of Hispanic students ($p < .001$). African-American students with disabilities also have teachers with less experience teaching students with disabilities, on average, than white students (8.2 vs. 10.7 years, $p < .05$). Income differences are apparent regarding teachers' perceptions of being adequately trained to teach students with special needs; lower-income students are more likely than those in the middle or highest income categories to have teachers who strongly agree that they are adequately trained (26% vs. 10% and 13%, $p < .05$).

Summary

NLTS2 has collected information on the classroom experiences of secondary school students with disabilities that span a wide range of subject areas for both general education academic classes and special education classes, as well as for vocational education courses taught in both general and special education settings. This information gives a good picture of the variation in classroom contexts and experiences of students with disabilities in middle and high school.

Findings reported in Chapter 3 showed that virtually all students with disabilities take at least one academic course in a given semester, and more than two-thirds of students take those courses in general education classes. This chapter has shown that more than 8 in 10 students with disabilities who take general education academic classes are in classes that perform at standard grade level. Although 16% of students with disabilities who take general education academic classes are tracked into classes that perform below grade level, 2% are in honors or advanced placement classes, including 12% of students with autism and 20% of students with visual impairments, affirming the wide range of abilities among students who receive special education services.

Virtually all students with disabilities in general education academic classes have teachers who are credentialed to teach the subject of the class, and these teachers average 14 years of experience, more than the average level of experience of teachers in their schools, suggesting that perhaps schools assign students with disabilities who take general education academic classes to particularly experienced teachers. However, those classes tend to be relatively large, averaging 21 students per adult, including 5 students with disabilities. In contrast, special education classes average 6 students per adult. This difference in size between general and special education classes also is noted for vocational education courses; although they average about 12 students per adult, there are an average of 15 students per adult in general educational classes and one-third that many in special education vocational classrooms.

Differences between disability categories in classroom context have much to do with the types of classes for which their classroom experiences have been reported in surveys. For example, students with multiple disabilities or autism are much more likely than those with learning disabilities or speech impairments to have their special education classroom experiences reported for life skills classes and to have their vocational education classroom experiences reported for special education vocational courses. Consistent with this difference, students with

multiple disabilities or autism tend to be in classes that have a smaller number of students per adult.

Demographic differences are not dramatic, particularly related to general education academic classes. However, some are apparent. Within general education academic classes, a gender difference is apparent in the performance level of classes; boys are more likely than girls to be in classes that function at grade level, whereas girls are more likely to be in classes that perform below grade level. Racial/ethnic differences also are noted. African-American and Hispanic students with disabilities are less likely than white students to have white teachers, and African-American students with disabilities also tend to have teachers who have less experience working with students with disabilities than do white students, although their teachers still average 8 years of experience.

With this depiction of the characteristics of general, special, and vocational education classrooms attended by secondary school students with disabilities as background, the subsequent chapters highlight the instructional experiences within them.