3. CHANGES IN THE SCHOOL PROGRAMS OF SECONDARY SCHOOL STUDENTS WITH DISABILITIES

The Individuals with Disabilities Education Act Amendments of 1997 (IDEA '97), the No Child Left Behind Act of 2001 (NCLB), and scores of state and local initiatives culminate two decades of increasing emphasis on the improvement of American education. Schools and educators are now being held accountable for the adequate yearly progress of all students, including those with disabilities. The success of these ambitious initiatives will depend on improvements in many domains, including teacher preparation and training, assessment policies, instructional practices, standards and expectations, and funding. However, it is in students' educational programs where "the rubber meets the road." What happens in schools and classes every school day is what students experience directly and is the mechanism through which educational interventions are most likely to produce higher levels of student achievement.

This chapter describes changes since the mid-1980s in important aspects of the daily school experiences of secondary school students with disabilities, including:

- The courses they take
- The settings of those courses (i.e., general or special education)
- The related services they are provided to help them participate in and succeed at school.

For NLTS, information on these topics is drawn from the school record abstract, which was completed for NLTS sample members by a school staff person for the students' most recent year in school, either the 1985-86 or 1986-87 school year. Information for NLTS2 is taken from the student's school program survey, completed by those most knowledgeable about the overall school programs of individual students for the 2001-02 school year.

School programs are described for students with disabilities as a group and for those who differ in their primary disability category, grade level, and selected demographic characteristics, where significant.

Course Taking

Choices regarding courses taken in secondary school have important implications for student learning, school completion, and postschool opportunities. The content of courses defines the knowledge and skills students acquire, and the academic rigor of courses affects the demands placed on students to meet performance expectations. Accumulating the appropriate number and distribution of credits and demonstrating adequate performance in the requisite courses determine whether students graduate from high school and are accepted for postsecondary education. Vocational training during high school can prepare students for advanced training or employment in the postschool years.

Although course-taking choices can reflect students' interests and postsecondary aspirations, they also are influenced by larger educational policies. For example, between 1984 and 1998, 13

states raised the number of academic credits[1] required to receive a high school diploma (National Center for Education Statistics, 2001). By 1998, 26 states required students to earn at least four credits in language arts and three credits in social studies. In addition to those requirements, 14 states required students to earn three credits each in science and mathematics, and an additional 12 states required students to earn at least two credits in those subjects (National Center for Education Statistics, 2001). This policy change is reflected in students' course-taking patterns. In 1998, 76% of American high school graduates had earned at least four credits in language arts, three in social studies, and two each in science and mathematics. This is a dramatic increase in the proportion of students in the general population earning this number and combination of academic credits; in 1982, only 32% of high school graduates had done so (National Center for Education Statistics, 2001).

In addition to these kinds of policy changes, which potentially affect all students, transition planning requirements, introduced in the 1990 amendments to IDEA and expanded in IDEA '97, could be expected to have an impact on the course taking of students with disabilities. As mentioned in Chapter 1, IDEA '97 requires that the course of study that is appropriate to help students achieve their transition goals be specified in their individualized education program (IEP) from age 14 onward (although the courses and services identified do not need to begin until age 16). Some of the differences between courses taken by secondary school students with disabilities in the mid-1980s and those taken in 2001 may result from implementation of these transition planning requirements.

Understanding the data collection instruments used in NLTS and NLTS2 is important for accurately interpreting the comparisons reported in this chapter. As noted earlier, in NLTS, school staff who were knowledgeable about the overall school programs of students with disabilities were asked to record on a "school record abstract" form each course students had taken in their most recent school year. The specific courses identified (e.g., algebra 2, biology) were coded into the broad categories reported in Exhibits 3-1 and 3-2 (e.g., mathematics, science). In NLTS2, school staff reported the courses students with disabilities were taking in the spring semester of 2002 in those broad categories, rather than reporting specific courses.[2] Therefore, NLTS students had a full school year in which to take a given kind of course, whereas NLTS2 students had a single-semester opportunity to do so. This difference could result in overstating the enrollment of cohort 1 students in a given kind of course relative to cohort 2 students, thereby underestimating increases over time and overestimating decreases over time. This difference is unlikely to have a marked impact on estimates for courses that typically are a full school year in duration, as are many academic subjects, but could result in higher course-taking rates in cohort 1 than cohort 2 for subjects that often are single-semester courses, such as nonacademic electives.

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[1] Credits are measured in Carnegie units. The original source of the unit, the Carnegie Foundation, describes the unit, developed in 1906, as "a measure of the amount of time a student has studied a subject. For example, a total of 120 hours in one subject—meeting 4 or 5 times a week for 40 to 60 minutes, for 36 to 40 weeks each year—earns the student one 'unit' of high school credit. Fourteen units were deemed to constitute the minimum amount of preparation that may be interpreted as 'four years of academic or high school preparation'" (Carnegie Foundation, n.d., p. 1).

[2] NLTS2 also is collecting students' high school transcripts, which will enable a more fine-grained analysis of course taking when students have completed their full high school careers.

Academic Course Taking

The vast majority of both cohort 1 and cohort 2 students with disabilities were taking at least one academic course as part of their school programs in the period for which data were collected, usually language arts (Exhibit 3-1), with no change in language arts enrollment over time.

Exhibit 3-1
CHANGES IN ACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES

	Cohort 1 (1985-86 or 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change
Percentage taking:			
Any academic course	97.4 (.6)	98.1 (.6)	+.7
Language arts	95.2 (.8)	95.2 (.9)	.0
Mathematics	81.9 (1.4)	92.5 (1.1)	**+10.6*** **
Science	62.3 (1.8)	83.1 (1.5)	**+20.8*** **
Social studies	74.6 (1.6)	88.0 (1.3)	**+13.4*** **
Foreign language	5.8 (.9)	21.1 (1.7)	**+15.3*** **

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant in a two-tailed test at the following level: ***=p<.001.

However, all other kinds of academic courses were much more likely to be taken by cohort 2 students than their cohort 1 peers. Mathematics course taking shows an 11-percentage-point increase, with 92% of cohort 2 students taking math (p<.001). An even larger increase, 21 percentage points, is noted for science course taking. Whereas 62% of cohort 1 students with disabilities were taking science, more than 8 in 10 cohort 2 students were doing so (p<.001). Almost 90% of cohort 2 students were taking social studies, a 13-percentage-point increase over cohort 1 (p<.001). Foreign language course taking increased by a similar amount (15 percentage points, p<.001), although it was a part of the school programs of only about one-fifth of cohort 2 students with disabilities.

Nonacademic Course Taking

Nonacademic[3] course taking also increased over time (Exhibit 3-2). Almost 90% of cohort 2 students with disabilities were taking at least one nonacademic course in the spring semester of 2001, a 5-percentage-point increase over cohort 1 (p<.01). However, this overall increase masks a less consistent picture across types of nonacademic classes. A 16-percentage-point increase is noted in the proportion of cohort 2 students taking fine arts or performing arts courses (p<.001), so that about half of cohort 2 students were taking them. In contrast, vocational education course taking declined by 7 percentage points (p<.01). About two-thirds of cohort 1 students were taking a vocational education course, compared with 61% of cohort 2 students. However, it is important to restate that the differences mentioned earlier in the ways courses were recorded for NLTS and NLTS2 students may result in higher estimates of course taking in cohort 1 than in cohort 2, thereby potentially understating increases over time and overstating decreases.

[3] Nonacademic courses include the courses indicated in Exhibit 3-2.

Exhibit 3-2
CHANGES IN NONACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES

	Cohort 1 (1985-86 or 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change
Percentage taking:			
Any nonacademic course	83.6	88.9	**+5.3****
	(1.4)	(1.3)	
Vocational education	68.4	61.0	**-7.4****
	(1.7)	(2.0)	
Fine arts/performing arts	32.7	48.7	**+16.0*****
	(1.7)	(2.0)	
Physical education	70.1	71.7	+1.6
	(1.7)	(1.8)	
Life skills/study skills	26.9	35.5	**+8.6*****
	(1.6)	(1.9)	

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Vocational education includes both prevocational and occupationally specific vocational education. Life skills includes instruction in life skills, social skills, and/or study skills.

Standard errors are in parentheses.

Statistically significant in a two-tailed test at the following levels: **=p<.01, ***=p<.001.

Instructional Settings

As mentioned in Chapter 2, the movement that began in the 1980s to include students with disabilities in general education settings, where appropriate, is reflected in a shift away from having students with disabilities attend special schools that serve only that population and toward their attendance at regular secondary schools. This shift, along with the large increases noted above in students with disabilities taking such courses as science and foreign language, suggests that students' participation in special education courses would decline and their participation in general education courses would increase. Increased participation in general education classes by students with disabilities is an important component of providing them access to the general education curriculum. However, their general education participation, without supports for the teachers and students involved, could present unintended challenges to students' ability to succeed at school.

This section addresses changes in students' participation in general and special education classes for the variety of subjects they take. It also considers the response of schools to the participation of students with disabilities in general education classes, as reflected in their policies of providing supports to general education teachers who have students with disabilities in their classes.

Changes in Instructional Settings

A dramatic change in instructional settings is indicated in the 21-percentage-point decline in students with disabilities taking any course at all in special education classes (Exhibit 3-3). In spring 2001, 30% of students with disabilities were taking no special education courses, a fairly rare occurrence in cohort 1 (9%, p<.001). However, there was not a corresponding increase in students with disabilities taking at least one general education class, in part because most cohort 1 students (84%) already were taking such a class. A small but statistically significant increase in receiving instruction at a vocational center also is noted (2% vs. 7% in cohorts 1 and 2, p<.001).

Exhibit 3-3
CHANGES IN INSTRUCTIONAL SETTINGS OF STUDENTS WITH DISABILITIES

	Cohort 1 (1985-86 or 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change
Percentage receiving any instruction in:			
General education classes	84.0	87.6	+3.6
	(1.3)	(1.3)	
Special education classes	90.6	69.8	**-20.8*** **
	(1.0)	(1.9)	
Individualized settings	1.1	1.9	+.8
	(.4)	(.6)	
A vocational education center	2.5	6.7	**+4.2*** **
	(.6)	(1.0)	

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant in a two-tailed test at the following level: ***=p<.001.

This pattern of change in settings can be understood, in part, by examining the changes over time in settings for academic and nonacademic course taking (Exhibit 3-4). Cohort 2 students' participation in general education courses was more likely to involve academic courses than was true for their cohort 1 peers. There was a 9-percentage-point increase over time in students with disabilities taking at least one academic general education course, corresponding to an 11-percentage-point decline in special education academic course taking ($p<.001$ for both changes). Increases of 8 to 10 percentage points are noted in students taking mathematics, science, and social studies in general education classes ($p<.01$ and $p<.001$). Decreases of similar sizes in taking such courses in special education classes also are apparent (6 to 9 percentage

Exhibit 3-4
CHANGES IN INSTRUCTIONAL SETTINGS OF STUDENTS WITH DISABILITIES, BY TYPE OF COURSE

	Percentage Taking Course Who Were Taking It in:					
	A General Education Class			A Special Education Class		
Type of Course Taken	Cohort 1 (1985-86 or 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change	Cohort 1 (1985-86 or 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change
Any academic course	61.5	70.2	**+8.7*** **	70.1	59.1	**-11.0*** **
	(1.8)	(1.9)		(1.7)	(2.0)	
Language arts	43.4	48.9	+5.5	63.8	54.4	**-9.4*** **
	(1.9)	(2.1)		(1.8)	(2.1)	
Mathematics	44.7	52.7	**+8.0** **	56.8	50.6	**-6.2***
	(2.0)	(2.1)		(2.0)	(2.1)	
Science	57.5	66.1	**+8.6** **	43.7	37.1	**-6.6***
	(2.4)	(2.2)		(2.4)	(2.2)	
Social studies	53.7	63.9	**+10.2*** **	47.9	38.9	**-9.0** **
	(2.2)	(2.1)		(2.2)	(2.2)	
Any nonacademic course	93.8	83.8	**-10.0*** **	19.4	46.1	**+26.7*** **
	(1.0)	(1.6)		(1.6)	(2.1)	
Vocational education	75.8	70.6	-5.2	28.2	34.8	**+6.6***
	(1.9)	(2.3)		(2.0)	(2.4)	
Fine arts/performing arts	83.4	87.0	+3.6	17.0	12.4	-4.6
	(2.5)	(1.9)		(2.5)	(1.9)	
Life skills/study skills	64.9	35.7	**-29.2*** **	35.8	60.6	**+24.8*** **
	(3.2)	(3.0)		(3.2)	(3.1)	

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

points, $p<.05$ and $p<.01$), along with a 9-percentage-point decrease in the proportion of students taking language arts in a special education class ($p<.001$). The instructional setting for foreign language did not change markedly over time; it was predominantly a general education course at both times.

In contrast to this pattern for academic course taking, it became increasingly likely over time that nonacademic courses were taken in special education classes, particularly life skills or study skills courses. Whereas almost all cohort 1 students with disabilities who were taking a nonacademic course (94%) were taking at least one in a general education class, 84% of cohort 2 students who were taking such a class were doing so in that setting ($p<.001$). At the same time, there was a 27-percentage-point increase in students with disabilities taking nonacademic courses in special education classes ($p<.001$), due to a 25-percentage-point increase in the likelihood that life skills or study skills courses were being taken in special education classes. Vocational education also was more likely to be a special education class for cohort 2 than for cohort 1 students (35% vs. 28%, $p<.05$). There was no change in settings for physical education courses.

Supports Provided to General Education Teachers with Students with Disabilities in Their Classes

The increasing likelihood that students with disabilities were taking academic courses in general education classes raises a question regarding the extent to which the instructional contexts, practices, and supports that characterize those classes were enabling students with disabilities in them to succeed. NLTS2 has described the general education academic classes frequented by students with disabilities at some length (Wagner, Newman, et al, 2003), using data collected through the NLTS2 general education teacher survey for the 2001-02 school year. NLTS did not collect similar information on the characteristics of general education classrooms in which students with disabilities were receiving instruction in the mid-1980s, so comparisons between cohort 1 and 2 students on their experiences in those classrooms are not possible. However, the two studies both have addressed the policies of students' schools regarding providing supports to general education teachers who had students with disabilities in their classes. Specifically, NLTS and NLTS2 have investigated the extent to which general education teachers were reported in the school background and school characteristics surveys to receive five types of support in schools that had general education/inclusion placement options for students with disabilities: consultation by special education or other staff; special materials or equipment to use with students with disabilities; inservice training regarding the needs of students with disabilities; teacher aides, instructional assistants, or aides for individual students; and smaller student loads or class sizes.

Virtually all students with disabilities were going to schools where there was a policy of providing at least one of these supports to general education teachers who had students with disabilities in their classes. Consultation by special education or other staff was the most common type of support; 97% of students in both cohorts were attending schools with a policy to make this type of support available (Exhibit 3-5). Other forms of support were less common in cohort 1, but there were large increases in their prevalence over time. The largest increase was

Exhibit 3-5
CHANGES IN SUPPORTS PROVIDED TO GENERAL EDUCATION TEACHERS WITH STUDENTS WITH DISABILITIES IN THEIR CLASSES

	Cohort 1 (1985-86/ 1986-87)	Cohort 2 (2000-01)	Percentage-Point Change
Percentage in schools with the following supports for general education teachers with students with disabilities in their classes:			
Consultation from a special educator	96.6 (.7)	96.8 (.7)	+.2
Special materials/equipment to use with students with disabilities	51.8 (1.9)	79.2 (1.7)	**+27.4*** **
Inservice training related to students with disabilities	43.7 (1.9)	71.2 (1.9)	**+27.5*** **
Classroom aide for teacher or individual student	28.0 (1.7)	84.4 (1.5)	**+56.4*** **
Smaller class size	9.7 (1.1)	31.8 (2.0)	**+22.1*** **

Sources: NLTS Wave 1 school background survey and NLTS2 Wave 1 school characteristics survey.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following level: ***=p<.001.

in the policy of providing an instructional assistant to a teacher or an individual aide to a student with disabilities.[4] Only about one-fourth of cohort 1 students were going to schools with this policy; in cohort 2, 84% of students were doing so (p<.001). Policies to provide special materials or equipment to use for students with disabilities were reported in schools attended by 79% of cohort 2 students, and policies to provide teachers with inservice training related to students with disabilities were reported in schools attended by 71% of these students. These are increases of 27 and 28 percentage points, respectively (p<.001). A reduced class size was offered to general education teachers with students with disabilities in schools attended by almost one-third of cohort 2 students, compared with 10% of cohort 1 students (p<.001).

Related Services

Youth with disabilities may require a variety of support services to function in their daily life and perform in school. Some services are arranged for by families and provided by a variety of community-based organizations. In addition, students with disabilities who qualify for special education may receive related services to help them benefit from special education, as prescribed in a student's IEP. The related-services provisions of IDEA make schools a major provider of health-related, adaptive, social, emotional, and technology supports for students with disabilities.

[4] Some of the large increase in the reported provision of teacher or student aides may result from the expanded wording of this question used in NLTS2. NLTS asked school staff to report whether general education teachers were offered "human aides" when they had students with disabilities in their classes, which may have been interpreted to refer to aides for particular students with disabilities. NLTS2 expanded this response category, asking whether teachers were provided "teacher aides, instructional assistants, or aides for individual students," which may have been interpreted to include both aides for the classroom and aides assigned to individual students with disabilities.

Exhibit 3-6
CHANGES IN SERVICES PROVIDED TO STUDENTS WITH DISABILITIES

	Cohort 1 (1985-86 or 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change
Percentage with IEP that specified receipt of:			
Speech/language pathology services	17.4 (1.4)	13.7 (1.5)	-3.7
Mental health services	12.8 (1.2)	19.6 (1.8)	**+6.8****
Special transportation	8.3 (1.0)	8.8 (1.2)	+.5
Social work services	8.0 (1.0)	12.1 (1.5)	**+4.1***
Adaptive physical education	6.3 (.9)	8.6 (1.2)	+2.3
Assistive devices/adaptations	2.9 (.6)	8.0 (1.2)	**+5.1*****
Occupational therapy	3.0 (.6)	3.6 (.8)	+.4
Health services	3.1 (.6)	6.3 (1.1)	**+3.2***
Physical therapy	2.0 (.5)	3.0 (.8)	+1.0
Audiology services	.8 (.3)	2.2 (.6)	+1.4
Orientation/mobility training	.1 (.1)	1.6 (.6)	**+1.5***

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Comparisons of findings from NLTS and NLTS2 permit an assessment of changes in the extent to which a variety of related services were provided to students with disabilities by or through their schools. Five of the 11 related services investigated in both studies (listed in Exhibit 3-6) show significant increases over time in the percentage of students with disabilities reported to receive them from or through their school. Mental health services show the largest increase—7 percentage points ($p<.01$)—with one in five cohort 2 students with disabilities receiving mental health services through their school. Increases of 3 to 5 percentage points are noted for the provision of assistive devices or adaptations and social work and health services ($p<.001$ and $p<.05$). Orientation/mobility training increased by 2 percentage points ($p<.05$). No significant increases are noted for speech/language pathology or audiology services, occupational or physical therapy, special transportation, or adaptive physical education.

Differential Changes in Students' School Programs across Disability Categories

In *The Individual and Household Characteristics of Youth with Disabilities*, an earlier report from NLTS2 (Wagner, Marder, Levine, et al., 2003), the diversity of secondary school students who receive special education services is documented. Not only do they have the wide range of demographic characteristics that are found in the general student population (e.g., differences in socioeconomic background, racial/ethnic and language diversity), but they also span the full spectrum of abilities on the many dimensions of functioning addressed in NLTS2 (e.g., mobility, communication, social skills). For example, although about 7 in 10 students with disabilities have no trouble carrying on a conversation, almost 1 in 10 are reported by parents to have "a lot of trouble" with such interactions. Similarly, most students with disabilities have normal use of their limbs, but 1 in 10 are reported to have "a lot of trouble" using their arms, hands, legs, or

feet. Parents rate about one-fourth of students with disabilities as having high social skills but about one-fifth as having poor social skills (Wagner, Marder, Levine, et al., 2003). Given this diversity, it is not surprising that changes in their secondary school programs occurred differentially across categories, as described below.[5]

Academic Course Taking

Despite the lack of significant change in the proportions of students with disabilities as a whole taking any academic course or language arts courses (presented in Exhibit 3-1), cohort 2 students with multiple disabilities were significantly more likely than their cohort 1 counterparts to be taking academic and language arts courses, by 12 and 14 percentage points, respectively ($p<.05$; Exhibit 3-7). Nonetheless, they still were less likely than students in other categories to take academic courses of every kind (e.g., 81% of cohort 2 students with multiple disabilities were taking mathematics, compared with 93% of students with other health impairments, $p<.001$).

Other academic course-taking increases were more widespread. Increases in taking science courses occurred across all disability categories, ranging from 13 to 34 percentage points ($p<.01$ and $p<.001$). Students in all categories except emotional disturbance show significant increases in mathematics course taking (8 to 17 percentage points, $p<.05$ to $p<.001$), and students in all categories except orthopedic impairment show significant increases in social studies course taking (10 to 29 percentage points, $p<.05$ to $p<.001$). Significant increases ranging from 8 to 22 percentage points occurred in foreign language course taking among students in all categories except other health impairment and multiple disabilities ($p<.01$ and $p<.001$ across categories).

With the exception of students with multiple disabilities, academic course taking in general, and language arts and mathematics course taking in particular, did not vary markedly across categories of cohort 2 students. However, cohort 2 students with mental retardation, like those with multiple disabilities, were less likely to take other kinds of academic courses than students in most other categories. For example, about three-fourths of cohort 2 students with mental retardation were taking science and social studies, compared with about 85% of students with hearing impairments ($p<.05$ and $p<.001$ for the two kinds of classes).

[5] Because there are too few students with deaf-blindness to report separately, they are combined with students with multiple disabilities for analyses reported in this section.

Exhibit 3-7
CHANGES IN ACADEMIC COURSE TAKING, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage taking:									
Any academic course									
Cohort 1 (1985-86/1986-87)	98.9	98.1	93.3	98.9	97.1	96.2	97.1	93.7	73.8
	(.6)	(1.1)	(1.5)	(.7)	(1.1)	(1.9)	(1.5)	(2.5)	(5.1)
Cohort 2 (2001-02)	99.1	99.2	94.8	98.4	99.6	95.8	93.9	97.1	85.8
	(.6)	(.6)	(1.4)	(1.0)	(.5)	(1.8)	(1.6)	(.9)	(2.5)
Percentage-point change	+.2	+1.1	+1.5	-.5	+2.5	-.4	-3.2	+3.4	**+12.0***
Language arts									
Cohort 1 (1985-86/1986-87)	97.2	96.5	88.9	97.5	95.4	91.1	94.4	92.6	70.1
	(.9)	(1.4)	(1.9)	(1.1)	(1.4)	(2.8)	(2.0)	(2.7)	(5.3)
Cohort 2 (2001-02)	95.4	97.8	93.5	96.1	99.0	94.5	91.2	96.4	84.4
	(1.3)	(1.0)	(1.6)	(1.5)	(.7)	(2.0)	(1.9)	(1.0)	(2.6)
Percentage-point change	-1.8	+1.3	+4.6	-1.4	+3.6	+3.4	-3.2	+3.8	**+14.3***
Mathematics									
Cohort 1 (1985-86/1986-87)	80.6	85.5	82.6	87.9	87.3	78.3	80.8	78.2	64.8
	(2.2)	(2.8)	(2.2)	(2.3)	(2.2)	(4.0)	(3.5)	(4.2)	(5.5)
Cohort 2 (2001-02)	92.7	94.7	92.3	93.0	95.7	90.9	88.9	92.9	81.4
	(1.6)	(1.5)	(1.7)	(2.0)	(1.5)	(2.6)	(2.1)	(1.4)	(2.8)
Percentage-point change	**+12.1*** **	**+9.2** **	**+9.7*** **	+5.1	**+8.4** **	**+12.6** **	**+8.1***	**+14.7*** **	**+16.6** **
Science									
Cohort 1 (1985-86/1986-87)	64.1	72.9	52.0	71.1	65.2	61.8	52.1	59.4	32.2
	(2.7)	(3.5)	(3.0)	(3.2)	(3.1)	(4.7)	(4.4)	(5.0)	(5.4)
Cohort 2 (2001-02)	84.8	87.3	73.8	84.3	85.2	80.4	78.5	85.3	66.3
	(2.3)	(2.2)	(2.9)	(3.0)	(2.7)	(3.6)	(2.8)	(1.9)	(3.5)
Percentage-point change	**+20.7*** **	**+14.4*** **	**+21.8*** **	**+13.2** **	**+20.0*** **	**+18.6** **	**+26.4*** **	**+25.9*** **	**+34.1*** **
Social studies									
Cohort 1 (1985-86/1986-87)	77.4	76.5	63.9	80.5	76.0	78.1	77.5	74.9	39.6
	(2.4)	(3.3)	(2.8)	(2.8)	(2.8)	(4.0)	(3.7)	(4.5)	(5.7)
Cohort 2 (2001-02)	90.2	90.4	74.7	93.2	87.9	88.2	82.7	88.3	69.0
	(1.9)	(1.9)	(2.9)	(2.0)	(2.5)	(2.9)	(2.6)	(1.8)	(3.4)
Percentage-point change	**+12.8*** **	**+13.9*** **	**+10.8** **	**+12.7*** **	**+11.9** **	**+10.1***	+5.2	**+13.4** **	**+29.4*** **
Foreign language									
Cohort 1 (1985-86/1986-87)	6.8	13.5	1.0	4.3	6.2	18.2	12.4	13.6	.4
	(1.4)	(2.7)	(.6)	(1.4)	(1.6)	(3.8)	(2.9)	(3.5)	(.7)
Cohort 2 (2001-02)	24.3	31.0	8.7	15.1	26.7	33.6	24.4	18.8	8.8
	(2.7)	(3.0)	(1.8)	(2.8)	(3.3)	(4.2)	(2.9)	(2.1)	(2.0)
Percentage-point change	**+17.5*** **	**+17.5*** **	**+7.7*** **	**+10.8*** **	**+21.5*** **	**15.4** **	**+12.0** **	+5.2	+8.4

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Nonacademic Course Taking

The significant increase in nonacademic course taking among students with disabilities as a whole (presented in Exhibit 3-3) occurred only among students with emotional disturbances or multiple disabilities (9 and 12 percentage points, respectively, $p<.05$; Exhibit 3-8). Students with multiple disabilities show increased enrollment in all forms of nonacademic courses, ranging

Exhibit 3-8
CHANGES IN NONACADEMIC COURSE TAKING, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage taking:									
Any nonacademic course									
Cohort 1 (1985-86/1986-87)	82.8	86.5	87.7	78.8	84.9	90.8	80.7	86.8	83.3
	(2.1)	(2.7)	(1.9)	(2.9)	(2.3)	(2.8)	(3.5)	(3.5)	(4.3)
Cohort 2 (2001-02)	88.5	87.6	92.2	87.6	89.9	88.4	86.6	88.0	95.1
	(2.0)	(2.1)	(1.7)	(2.6)	(2.3)	(2.8)	(2.3)	(1.8)	(1.6)
Percentage-point change	+5.7	+1.1	+4.5	**+8.8***	+5.0	-2.4	+5.9	+1.2	**+11.8***
Vocational education									
Cohort 1 (1985-86/1986-87)	69.8	60.9	69.2	63.5	71.7	63.9	54.8	66.7	62.8
	(2.6)	(3.8)	(2.7)	(3.4)	(2.9)	(4.7)	(4.4)	(4.8)	(5.6)
Cohort 2 (2001-02)	58.3	51.0	77.1	60.0	61.7	54.1	59.3	60.8	77.8
	(3.1)	(3.2)	(2.7)	(3.9)	(3.6)	(4.4)	(3.3)	(2.6)	(3.0)
Percentage-point change	**-11.5****	**-9.9***	**+7.9***	-3.5	**-10.0***	-9.8	+4.5	-5.9	**+15.0***
Fine/performing arts									
Cohort 1 (1985-86/1986-87)	33.4	43.4	28.1	31.9	28.0	52.7	33.0	39.5	36.6
	(2.7)	(3.9)	(2.7)	(3.3)	(2.9)	(4.9)	(4.2)	(5.0)	(5.6)
Cohort 2 (2001-02)	47.7	52.8	50.7	44.7	53.9	61.2	54.0	53.1	63.0
	(3.1)	(3.2)	(3.2)	(3.9)	(3.7)	(4.3)	(3.3)	(2.7)	(3.5)
Percentage-point change	**+14.3*****	+9.4	**+22.6*****	**+12.8***	**+25.9*****	+8.5	**+21.0*****	**+13.6***	**+26.4*****
Physical education									
Cohort 1 (1985-86/1986-87)	68.9	68.4	75.9	70.6	68.1	64.9	51.8	58.0	65.8
	(2.6)	(3.6)	(2.5)	(3.2)	(3.0)	(4.7)	(4.4)	(5.1)	(5.5)
Cohort 2 (2001-02)	70.4	72.4	77.5	71.6	75.7	67.8	63.6	71.4	83.2
	(2.8)	(2.9)	(2.7)	(3.6)	(3.2)	(4.1)	(3.2)	(2.5)	(2.7)
Percentage-point change	+1.5	+4.0	+1.6	+1.0	+7.6	+2.9	**+11.8***	**+13.4***	**+29.5****
Life skills/study skills									
Cohort 1 (1985-86/1986-87)	22.4	22.5	42.7	19.7	33.4	31.7	35.0	32.6	52.0
	(2.4)	(3.3)	(2.9)	(2.8)	(3.1)	(4.5)	(4.2)	(4.8)	(5.8)
Cohort 2 (2001-02)	26.2	22.4	72.6	45.6	26.9	42.7	40.0	32.2	75.0
	(2.7)	(2.7)	(2.9)	(4.0)	(3.3)	(4.4)	(3.3)	(2.5)	(3.1)
Percentage-point change	+3.8	-.1	**+29.9*****	**+25.9*****	-6.5	+11.0	+5.0	-.4	**+23.0*****

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

from a 15-percentage-point increase in taking vocational education (p<.05) to a 30-percentage-point increase in taking physical education (p<.01). Students with mental retardation also recorded a significant increase in vocational course taking (8 percentage points, p<.05), despite the overall decline in vocational education enrollment for students with disabilities as a whole.

Increases in nonacademic course taking were most widespread for fine arts courses, with seven of the disability categories having significant increases, which range from 13 percentage points for students with emotional disturbances (p<.05) to 26 percentage points for those with hearing impairments or multiple disabilities (p<.001). The categories of students whose fine arts course taking was the highest in cohort 1—students with speech or visual impairments—did not show a significant increase in cohort 2. Besides students with multiple disabilities, increases in

physical education course taking occurred only for students with orthopedic or other health impairments (12 and 13 percentage points, p<.05), and life skills or study skills course taking increased only for students with mental retardation or emotional disturbances (30 and 26 percentage points, p<.001).

Instructional Settings

The large decline in students with disabilities taking courses in special education settings that was noted previously for the group overall (presented in Exhibit 3-4) was fairly widespread (Exhibit 3-9), occurring for students in six of the disability categories and ranging from 12 to 26 percentage points (p<.05 and p<.001). No change is noted for students with other health impairments, who already were the least likely to be taking courses in special education settings in cohort 1. In contrast, the other two categories of students among whom there was no decrease in special education course taking were the most likely to be taking them in cohort 1; virtually all cohort 1 students with mental retardation or multiple disabilities were taking special education

Exhibit 3-9
CHANGES IN INSTRUCTIONAL SETTINGS, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage receiving any instruction in:									
General education classes									
Cohort 1 (1985-86/1986-87)	91.5 (1.5)	90.8 (2.2)	69.1 (2.6)	78.9 (2.8)	70.1 (2.9)	71.8 (4.2)	74.5 (3.6)	80.4 (4.0)	30.9 (5.2)
Cohort 2 (2001-02)	94.0 (1.5)	95.4 (1.4)	69.3 (3.0)	78.5 (3.3)	76.3 (3.2)	70.9 (4.0)	83.7 (2.5)	86.8 (1.8)	55.2 (3.6)
Percentage-point change	+2.5	+4.6	+.2	-.4	+6.2	-.9	+9.2	+6.4	**+24.3*** **
Special education classes									
Cohort 1 (1985-86/1986-87)	89.9 (1.7)	75.9 (3.2)	97.4 (.9)	89.1 (2.1)	94.1 (1.5)	78.6 (3.8)	79.8 (3.3)	66.2 (4.7)	98.1 (1.5)
Cohort 2 (2001-02)	65.8 (2.9)	50.1 (3.3)	91.6 (1.8)	74.0 (3.5)	67.6 (3.5)	54.2 (4.4)	68.0 (3.1)	65.6 (2.6)	95.0 (1.6)
Percentage-point change	**-24.1*** **	**-25.8*** **	-5.8	**-15.1*** **	**-26.5*** **	**-24.4*** **	**-11.8***	-.6	-3.1
An individualized setting									
Cohort 1 (1985-86/1986-87)	.5 (.4)	.4 (.5)	.9 (.5)	2.8 (1.1)	.4 (.4)	1.5 (1.1)	6.9 (2.1)	14.7 (3.5)	3.0 (1.9)
Cohort 2 (2001-02)	1.0 (.6)	1.1 (.7)	2.5 (1.0)	5.1 (1.7)	1.7 (1.0)	6.0 (2.1)	3.4 (1.2)	4.1 (1.1)	2.6 (1.2)
Percentage-point change	+.5	+.7	+1.6	+2.3	+1.3	+4.5	-3.5	**-10.6** **	-.4
A vocational education center									
Cohort 1 (1985-86/1986-87)	2.5 (.9)	1.3 (.9)	3.2 (1.0)	2.0 (1.0)	1.7 (.8)	1.5 (1.1)	1.6 (1.0)	.9 (.9)	7.0 (2.9)
Cohort 2 (2001-02)	6.0 (1.5)	2.2 (1.0)	11.8 (2.1)	5.3 (1.8)	2.3 (1.1)	6.9 (2.2)	6.5 (1.7)	6.3 (1.3)	17.8 (2.8)
Percentage-point change	+3.5	+.9	**+8.6*** **	+3.3	+.6	**+5.4***	**+4.9***	**+5.4*** **	**+10.8** **

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

courses, and their cohort 2 counterparts show no significant decline. However, students with multiple disabilities are the only ones showing a significant increase in taking general education courses, 24 percentage points ($p<.001$), with more than half of cohort 2 students with multiple disabilities taking at least one general education class. However, this rate is still significantly lower than that for students in any other category ($p<.01$ compared with students with mental retardation, the category with the next lowest rate of general education course taking).

Despite the absence of widespread increases in students' likelihood of taking any general education course, increases in providing several forms of support to general education teachers who had students with disabilities in their classes occurred across all disability categories. The data show increases of 16 to 34 percentage points across categories in students with disabilities attending schools with policies of providing disability-related inservice training, increases of 28 to 62 percentage points in their attending schools with policies of providing teachers or individual students with aides or assistants, and increases of 17 to 24 percentage points in their attending schools with policies of giving general education teachers smaller class sizes or student loads because they had students with disabilities in their classes. Significant increases also occurred for students in all categories except multiple disabilities in attending schools with policies of providing special materials or equipment to general education teachers to use with their students with disabilities, ranging from 14 to 32 percentage points. Differences in the size of changes across categories generally resulted in moderating the differences across categories that existed in cohort 1, so that cohort 2 students in various categories were more similar to each other than was true for cohort 1 students regarding their schools' policies toward general education teacher support.

Although students with disabilities as a whole show no significant change in receiving instruction in an individual setting, a significant decline in that kind of instruction is noted for students with other health impairments (11 percentage points, $p<.01$). Five categories of students show overall increases in course taking at a vocational center: 5 percentage points among students with visual, orthopedic, or other health impairments ($p<.05$ and $p<.001$), 9 percentage points for students with mental retardation ($p<.001$), and 11 percentage points for students with multiple disabilities ($p<.01$).

Instructional settings for academic courses. Changes in the settings in which students with disabilities were taking specific kinds of academic courses were limited to students in only a few disability categories (Exhibit 3-10). The increase in taking any general education academic classes and the corresponding decline in taking special education academic classes that occurred among students with disabilities as a whole (presented in Exhibit 3-5) resulted from changes in the settings for academic courses taken by students with learning disabilities or hearing impairments. They had 10- and 15-percentage-point increases in general education academic course taking ($p<.01$) and decreases of 12 and 16 percentage points in special education academic course taking ($p<.01$ and $p<.001$). In fact, students with hearing impairments had the most widespread pattern of change in settings for academic course taking, with increases in the likelihood of their language arts, science, and social studies courses being in general education settings (17 to 22 percentage points, $p<.01$ and $p<.001$) and corresponding declines in the likelihood of those courses being in special education classes (18 to 20 percentage points, $p<.001$). These changes are consistent with the sizable reduction in the proportion of students with hearing impairments attending special schools and the corresponding increase in their enrollment in regular secondary schools.

Exhibit 3-10
CHANGES IN INSTRUCTIONAL SETTINGS FOR ACADEMIC COURSES, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage taking course in setting:									
Any academic course									
General education class									
Cohort 1 (1985-86/1986-87)	71.0 (2.6)	82.2 (3.0)	28.9 (2.8)	61.4 (3.5)	51.4 (3.2)	70.8 (4.5)	62.5 (4.4)	73.0 (4.7)	18.0 (5.2)
Cohort 2 (2001-02)	79.6 (2.5)	83.1 (2.4)	32.1 (3.1)	58.7 (3.9)	66.3 (3.6)	66.6 (4.3)	70.6 (3.1)	73.2 (2.4)	27.5 (3.6)
Percentage-point change	**+9.6****	+.9	+3.2	+2.7	**+14.9****	-4.2	+8.1	+.2	+9.5
Special education class									
Cohort 1 (1985-86/1986-87)	65.3 (2.7)	35.9 (3.8)	93.7 (1.5)	70.5 (3.3)	72.1 (2.9)	41.9 (4.9)	59.1 (4.5)	45.3 (5.3)	93.2 (3.4)
Cohort 2 (2001-02)	53.4 (3.1)	40.4 (3.2)	90.8 (1.9)	63.2 (3.8)	55.9 (3.7)	42.3 (4.5)	52.8 (3.4)	53.5 (2.7)	91.9 (2.2)
Percentage-point change	**-11.9****	+4.5	-2.9	-7.3	**-16.2*****	+.4	-6.3	+8.2	-1.3
Language arts									
General education class									
Cohort 1 (1985-86/1986-87)	48.4 (2.9)	72.6 (3.6)	17.6 (2.4)	49.0 (3.6)	35.2 (3.1)	67.2 (4.7)	54.0 (4.6)	62.0 (5.2)	7.1 (3.5)
Cohort 2 (2001-02)	55.1 (3.2)	69.7 (3.1)	16.4 (2.5)	42.6 (4.0)	52.6 (3.8)	62.7 (4.5)	53.7 (3.5)	56.8 (2.8)	16.9 (3.0)
Percentage-point change	+6.7	-2.9	-1.2	-6.4	**+17.4*****	+.5	-.3	-5.2	**+9.8***
Special education class									
Cohort 1 (1985-86/1986-87)	58.7 (2.8)	32.2 (3.7)	89.8 (1.9)	61.4 (3.5)	69.1 (3.0)	35.4 (4.8)	50.7 (4.6)	41.6 (5.3)	94.7 (3.1)
Cohort 2 (2001-02)	49.2 (3.2)	35.4 (3.2)	86.6 (2.3)	55.7 (4.0)	50.5 (3.8)	35.7 (4.5)	48.3 (3.5)	46.4 (2.8)	83.6 (3.0)
Percentage-point change	-9.5*	+3.2	-3.2	-5.7	**-18.6*****	+.3	-2.4	+4.8	**-11.1***
Mathematics									
General education class									
Cohort 1 (1985-86/1986-87)	53.0 (3.2)	73.8 (3.8)	15.8 (2.4)	41.9 (3.7)	47.7 (3.4)	62.9 (5.0)	48.5 (5.0)	61.3 (5.6)	13.6 (5.1)
Cohort 2 (2001-02)	61.9 (3.2)	70.1 (3.1)	14.8 (2.4)	43.3 (4.1)	52.4 (3.9)	59.3 (4.7)	53.4 (3.5)	55.2 (2.8)	9.7 (2.5)
Percentage-point change	**+8.9***	-3.7	-1.0	+1.4	+4.7	-3.6	+4.9	-6.1	3.9

Exhibit 3-10
CHANGES IN INSTRUCTIONAL SETTINGS FOR ACADEMIC COURSES, BY DISABILITY CATEGORY (Concluded)

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage taking course in setting:									
Science									
General education class									
Cohort 1 (1985-86/1986-87)	66.5 (3.4)	83.4 (3.4)	24.4 (3.5)	49.3 (4.2)	41.9 (3.9)	62.2 (5.7)	61.2 (5.3)	79.9 (5.3)	28.3 (8.1)
Cohort 2 (2001-02)	74.4 (3.0)	80.0 (2.8)	30.1 (3.5)	52.0 (4.4)	63.9 (4.0)	67.0 (4.6)	68.7 (3.4)	71.9 (2.7)	25.6 (4.1)
Percentage-point change	+7.9	-3.4	+5.7	+2.7	**+22.0*** **	+4.8	+7.5	-8.0	+2.7
Special education class									
Cohort 1 (1985-86/1986-87)	35.0 (3.4)	17.8 (3.5)	76.1 (3.5)	51.6 (4.2)	58.4 (3.9)	37.8 (5.7)	38.9 (5.3)	23.2 (5.5)	71.7 (8.1)
Cohort 2 (2001-02)	29.2 (3.1)	23.1 (3.0)	73.6 (3.4)	49.0 (4.4)	38.0 (4.0)	33.3 (4.6)	30.7 (3.4)	31.6 (2.8)	77.2 (3.9)
Percentage-point change	-5.8	+5.3	-2.5	-2.6	**-20.4*** **	-4.5	-8.2	+8.4	+5.5
Social studies									
General education class									
Cohort 1 (1985-86/1986-87)	61.8 (3.1)	79.3 (3.7)	22.8 (3.1)	48.0 (3.9)	41.6 (3.6)	74.4 (4.7)	58.2 (5.1)	68.4 (5.7)	20.0 (6.9)
Cohort 2 (2001-02)	71.4 (3.0)	79.2 (2.8)	29.0 (3.5)	51.5 (4.2)	58.9 (4.0)	66.8 (4.6)	69.2 (3.4)	69.5 (2.7)	20.7 (3.8)
Percentage-point change	**+9.6***	-.1	+6.2	+3.5	**+17.3****	-7.6	+11.0	+1.1	+.7
Special education class									
Cohort 1 (1985-86/1986-87)	40.1 (3.2)	20.7 (3.7)	78.2 (3.1)	53.6 (3.9)	60.6 (3.5)	26.3 (4.8)	43.8 (5.2)	31.8 (5.7)	80.3 (6.9)
Cohort 2 (2001-02)	32.2 (3.1)	24.0 (3.0)	73.7 (3.4)	48.0 (4.2)	42.3 (4.0)	33.6 (4.6)	32.9 (3.5)	33.1 (2.8)	82.2 (3.6)
Percentage-point change	-7.9	+3.3	-4.5	-5.6	**-18.3*** **	+7.3	**-10.9***	+1.3	+1.9

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Students with multiple disabilities show a 10-percentage-point increase in general education language arts course taking ($p<.05$) and a corresponding 11-percentage-point decline in taking those courses in special education classes, $p<.05$). Students with learning disabilities show significant increases in taking both mathematics and social studies in general education classes (9 and 10 percentage points, $p<.05$) but no corresponding decline in taking those courses in special education classes.

These changes did little to alter the wide variation across disability categories in the settings in which students were taking particular kinds of courses. For example, there was a 64-percentage-point difference in cohort 1 between the categories of students most and least likely to be taking any academic class in a general education setting; the spread between categories was 56 percentage points for cohort 2 students. Those with speech impairments were

the most likely to be taking general education academic courses in both cohorts (82% and 83%), and students with multiple disabilities were the least likely to be doing so (18% and 28%).

Instructional settings for nonacademic courses. Changes in the settings in which students with disabilities were taking specific kinds of nonacademic courses were more widespread than those for academic courses (Exhibit 3-11). Increases in taking any nonacademic class in a special education settings occurred among students in seven disability categories, ranging from 10 to 39 percentage points ($p<.05$ and $p<.001$). The two categories of students who show no increase in special education nonacademic course taking—those with orthopedic impairments or multiple disabilities—were the most likely already to be taking such courses in cohort 1. Students with multiple disabilities continued to be the most likely to take nonacademic special education courses in cohort 2 (84%), but students with mental retardation surpassed those with orthopedic impairments in becoming the second most likely category of students to take nonacademic special education classes (75%).

Exhibit 3-11
CHANGES IN INSTRUCTIONAL SETTINGS FOR NONACADEMIC COURSES, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage taking course in setting:									
Any nonacademic course									
General education class									
Cohort 1 (1985-86/1986-87)	97.2 (1.0)	95.7 (1.7)	91.9 (1.7)	83.1 (2.9)	84.6 (2.5)	84.5 (3.8)	73.7 (4.2)	90.4 (3.3)	75.4 (5.4)
Cohort 2 (2001-02)	90.6 (1.9)	90.7 (2.0)	65.9 (3.2)	73.6 (3.7)	71.4 (3.6)	65.2 (4.5)	72.8 (3.2)	83.1 (2.1)	51.3 (3.7)
Percentage-point change	**-6.6****	-5.0	**-26.0*****	**-9.5***	**-13.2****	**-19.3*****	-.9	-7.3	**-24.1*****
Special education class									
Cohort 1 (1985-86/1986-87)	10.1 (1.9)	10.3 (2.6)	35.9 (3.1)	28.0 (3.5)	39.6 (3.4)	34.9 (5.0)	59.3 (4.7)	32.4 (5.2)	84.0 (4.6)
Cohort 2 (2001-02)	38.0 (3.2)	32.2 (3.2)	75.0 (2.9)	54.8 (4.2)	50.1 (4.0)	49.9 (4.7)	57.9 (3.6)	44.6 (2.8)	84.1 (2.7)
Percentage-point change	**+27.9*****	**+21.9*****	**+39.1*****	**+26.8*****	**+10.5***	**+15.0***	-1.4	**+12.2***	+.1
Vocational education									
Special education class									
Cohort 1 (1985-86/1986-87)	18.8 (2.6)	17.7 (3.8)	51.6 (3.6)	31.8 (4.2)	48.7 (3.7)	38.1 (6.3)	49.0 (5.5)	28.9 (5.8)	78.1 (5.9)
Cohort 2 (2001-02)	24.2 (3.5)	24.0 (3.8)	65.4 (3.5)	38.6 (5.1)	44.7 (4.7)	56.3 (5.5)	41.4 (4.5)	37.9 (3.4)	75.3 (3.6)
Percentage-point change	+5.4	+6.3	**+13.8****	+6.8	-4.0	**+18.2***	-7.6	+9.0	-2.8

Exhibit 3-11
CHANGES IN INSTRUCTIONAL SETTINGS FOR NONACADEMIC COURSES, BY DISABILITY CATEGORY (Concluded)

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage taking course in setting:									
Fine arts/performing arts									
General education class									
Cohort 1 (1985-86/1986-87)	89.2 (3.1)	93.4 (3.1)	71.5 (5.1)	75.0 (5.3)	70.2 (6.0)	65.1 (6.2)	71.6 (8.0)	74.6 (7.4)	26.7 (8.9)
Cohort 2 (2001-02)	93.3 (2.2)	93.5 (2.2)	72.2 (4.1)	76.0 (5.1)	78.2 (4.4)	65.2 (5.4)	86.9 (3.2)	88.4 (2.4)	51.0 (4.6)
Percentage-point change	+4.1	+.1	+.7	-1.0	+8.0	+.1	+15.3	+13.8	**+24.3***
Special education class									
Cohort 1 (1985-86/1986-87)	11.3 (3.2)	6.8 (3.1)	28.5 (5.1)	25.0 (5.3)	30.3 (6.0)	34.9 (6.2)	30.1 (8.1)	25.4 (7.4)	73.3 (8.9)
Cohort 2 (2001-02)	6.1 (2.1)	5.8 (2.1)	28.7 (4.2)	20.9 (4.9)	22.4 (4.4)	35.1 (5.5)	12.7 (3.1)	11.0 (2.3)	50.0 (4.6)
Percentage-point change	-5.2	+1.0	+.2	-4.1	-7.9	+.2	**-17.4***	-14.4	**-23.3***
Physical education									
General education class									
Cohort 1 (1985-86/1986-87)	93.0 (1.8)	90.7 (2.8)	71.7 (3.1)	74.9 (3.6)	69.0 (3.7)	58.3 (6.5)	31.6 (5.8)	73.7 (5.8)	24.8 (5.8)
Cohort 2 (2001-02)	95.9 (1.5)	94.0 (1.8)	68.0 (3.4)	80.3 (3.7)	75.1 (3.8)	59.8 (5.4)	61.7 (4.2)	84.8 (2.3)	49.8 (4.0)
Percentage-point change	+2.9	+3.3	-3.7	+5.4	+6.1	+1.5	**+30.1*****	+11.1	**+25.0*****
Special education class									
Cohort 1 (1985-86/1986-87)	7.0 (1.8)	9.3 (2.8)	28.3 (3.1)	25.1 (3.6)	31.0 (3.7)	41.3 (6.4)	68.4 (5.8)	26.3 (5.8)	75.2 (5.8)
Cohort 2 (2001-02)	3.9 (1.4)	6.4 (1.8)	34.9 (3.5)	19.2 (3.7)	24.9 (3.8)	40.1 (5.4)	41.4 (4.2)	14.5 (2.3)	52.1 (4.0)
Percentage-point change	-3.1	-2.9	+6.6	-5.9	-6.1	-1.2	**-27.0*****	-11.8	**-23.1****
Life skills/study skills									
General education class									
Cohort 1 (1985-86/1986-87)	77.9 (4.9)	80.5 (6.6)	49.7 (4.6)	58.3 (7.5)	46.2 (6.5)	51.7 (9.3)	59.3 (7.7)	61.7 (9.3)	6.3 (4.0)
Cohort 2 (2001-02)	50.5 (6.2)	57.8 (6.5)	17.7 (2.9)	24.9 (5.3)	33.2 (6.1)	24.3 (6.0)	31.7 (5.1)	34.0 (4.3)	12.1 (2.7)
Percentage-point change	**-27.4*****	**-22.7***	**-32.0*****	**-33.4*****	-13.0	**-27.4***	**-27.6****	**-27.7****	+4.8
Special education class									
Cohort 1 (1985-86/1986-87)	22.1 (4.9)	21.0 (6.7)	52.2 (4.6)	41.7 (7.5)	54.0 (6.5)	51.0 (9.3)	42.7 (7.8)	39.5 (9.4)	93.7 (4.0)
Cohort 2 (2001-02)	42.3 (6.1)	41.8 (6.5)	82.5 (2.9)	73.1 (5.4)	68.8 (6.0)	66.9 (6.6)	66.1 (5.2)	62.9 (4.4)	89.3 (2.6)
Percentage-point change	**+20.2***	**+20.8***	**+33.3*****	**+31.4*****	+14.8	+15.9	**+23.4***	**+23.4***	-4.4

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which a significant change occurred for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

As with the full population of students with disabilities, the change in settings for nonacademic courses as a whole occurred largely from changes in settings for life skills or study skills courses. Most categories of students with disabilities registered increases in taking such courses in special education classes (ranging from 20 to 33 percentage points, $p<.05$ and $p<.001$) and corresponding decreases in taking such classes in general education settings (23 to 33 percentage points, $p<.05$ to $p<.001$). Again, students with multiple disabilities show no move toward greater life skills course taking in special education settings because virtually all of them already were doing so in cohort 1 (94%).

The increase in vocational education course taking in special education classes that was noted previously for students with disabilities overall occurred primarily from large increases among students with mental retardation or visual impairments (14 and 18 percentage points, $p<.01$ and $p<.05$). Although neither fine arts nor physical education show significant changes in settings overall, students with multiple disabilities in cohort 2 were more likely to be taking such courses in general education classes, registering increases of 24 and 25 percentage points ($p<.05$ and $p<.001$). A similar shift in the setting for physical education is noted for students with orthopedic impairments (30 percentage points, $p<.001$), who also show a decline in the prevalence of taking fine arts courses in special education classes (17 percentage points, $p<.05$).

Related Services

Although significant increases in the provision of related services to students with disabilities were noted previously for only 5 of the 11 services investigated in NLTS and NLTS2 (presented in Exhibit 3-6), all 11 services were provided significantly more often to students in at least one disability category (Exhibit 3-12). Some services increased for the categories of students for whom they seem most directly applicable. For example, the largest increase in mental health services is noted for students with emotional disturbances (14 percentage points, $p<.01$), but increases also occurred for those with speech impairments and mental retardation (11 and 7 percentage points, $p<.001$ and $p<.05$). Similarly, audiology services increased primarily for students with hearing impairments (24 percentage points, $p<.001$) and for those with multiple disabilities, including deaf-blindness (7 percentage points, $p<.05$), but students with visual impairments also were more likely to receive audiology services in cohort 2 than previously (9 percentage points, $p<.01$). Orientation and mobility training increased the most among those with visual or orthopedic impairments (43 and 23 percentage points, $p<.001$) or with multiple disabilities, including deaf-blindness (16 percentage points, $p<.001$).

Exhibit 3-12
CHANGES IN RELATED SERVICES PROVIDED, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage with IEP that specified receipt of:									
Speech/language pathology services									
Cohort 1 (1985-86/1986-87)	10.9 (1.8)	54.9 (3.9)	28.6 (2.6)	7.5 (1.8)	55.9 (3.2)	7.5 (2.5)	21.7 (3.5)	16.3 (3.8)	60.0 (5.5)
Cohort 2 (2001-02)	5.4 (1.5)	64.3 (3.7)	31.1 (3.1)	7.2 (2.3)	56.7 (4.1)	19.9 (3.9)	27.6 (3.3)	18.6 (2.2)	58.6 (3.7)
Percentage-point change	-5.5	+9.4	+2.5	-.3	+.8	**+12.4****	+5.9	+2.3	-1.4
Mental health services									
Cohort 1 (1985-86/1986-87)	11.0 (1.8)	4.3 (1.6)	8.3 (1.6)	34.5 (3.3)	15.5 (2.3)	9.5 (2.8)	8.8 (2.4)	14.7 (3.7)	19.1 (4.4)
Cohort 2 (2001-02)	15.2 (2.5)	15.7 (2.9)	15.4 (2.5)	48.9 (4.3)	18.9 (3.2)	17.4 (3.8)	12.0 (2.5)	17.5 (2.3)	22.5 (3.3)
Percentage-point change	+4.2	**+11.4*****	**+7.1***	**+14.4****	+3.4	+7.9	+3.2	+2.8	+3.4
Special transportation assistance									
Cohort 1 (1985-86/1986-87)	2.3 (.8)	3.2 (1.4)	19.2 (2.2)	9.1 (2.0)	16.0 (2.4)	29.0 (4.3)	55.2 (4.2)	15.8 (3.8)	53.7 (5.6)
Cohort 2 (2001-02)	1.4 (.8)	2.8 (1.3)	29.2 (3.1)	7.9 (2.4)	15.1 (2.9)	35.8 (4.8)	56.8 (3.6)	15.4 (2.1)	56.6 (3.7)
Percentage-point change	-.9	-.4	**+10.0****	-1.2	-.9	+6.8	+1.6	-.4	+2.9
Social work services									
Cohort 1 (1985-86/1986-87)	5.5 (1.3)	1.1 (.8)	10.0 (1.7)	19.2 (2.8)	7.1 (1.7)	7.9 (2.6)	9.2 (2.4)	9.2 (3.0)	17.1 (4.2)
Cohort 2 (2001-02)	7.6 (1.8)	7.1 (2.0)	15.9 (2.6)	30.5 (4.0)	11.6 (2.6)	18.7 (4.0)	10.4 (2.4)	11.6 (1.9)	26.6 (3.6)
Percentage-point change	+2.1	+6.0	+5.9	**+11.3***	+4.5	**+10.8***	+1.2	+2.4	+9.5
Adaptive physical education									
Cohort 1 (1985-86/1986-87)	1.7 (.7)	1.3 (.9)	15.3 (2.0)	5.7 (1.6)	3.1 (1.1)	16.1 (3.5)	45.7 (4.2)	24.8 (4.5)	41.8 (5.6)
Cohort 2 (2001-02)	1.8 (.9)	3.5 (1.5)	29.8 (3.1)	6.3 (2.1)	6.3 (2.0)	37.3 (4.6)	49.4 (3.6)	14.3 (2.0)	57.5 (3.7)
Percentage-point change	+.1	+2.2	**+14.5*****	+.6	+3.2	**+21.2*****	+3.7	**-10.5***	**+13.7***
Assistive devices/adaptations									
Cohort 1 (1985-86/1986-87)	.9 (.5)	1.8 (1.0)	3.4 (1.0)	.2 (.3)	37.2 (3.1)	47.8 (4.8)	31.1 (3.9)	6.5 (2.5)	25.7 (4.9)
Cohort 2 (2001-02)	4.6 (1.4)	4.9 (1.7)	14.4 (2.4)	2.9 (1.5)	41.8 (4.0)	73.0 (4.3)	40.2 (3.6)	10.8 (1.8)	39.1 (3.8)
Percentage-point change	+3.7	+3.1	**+11.0*****	+2.7	+4.6	**+25.2*****	+9.1	+4.3	**+13.4***
Occupational therapy									
Cohort 1 (1985-86/1986-87)	.8 (.5)	3.7 (1.5)	7.1 (1.5)	1.0 (.7)	.8 (.6)	3.1 (1.7)	30.4 (3.9)	5.4 (2.3)	33.0 (5.3)
Cohort 2 (2001-02)	.7 (.6)	1.9 (1.1)	8.8 (1.9)	1.2 (1.0)	5.0 (1.8)	17.9 (3.8)	38.3 (3.6)	6.7 (1.5)	40.9 (3.7)
Percentage-point change	-.1	-1.8	+1.7	+.2	**+4.2***	**+14.8*****	+7.9	+1.3	+7.9

Exhibit 3-12
CHANGES IN RELATED SERVICES PROVIDED, BY DISABILITY CATEGORY (Concluded)

	Learning Disability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Disturb-ance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Multiple Disabilities/ Deaf-blindness
Percentage with IEP that specified receipt of:									
Health services									
Cohort 1 (1985-86/1986-87)	2.4	0.3	5.4	1.6	5.3	6.0	10.3	5.2	4.8
	(.9)	(.4)	(1.3)	(.9)	(1.5)	(2.3)	(2.6)	(2.3)	(2.4)
Cohort 2 (2001-02)	4.0	2.1	10.8	8.6	11.8	17.9	19.3	8.7	24.0
	(1.3)	(1.2)	(2.1)	(2.5)	(2.7)	(3.8)	(3.0)	(1.7)	(3.4)
Percentage-point change	+1.6	+1.7	+5.4	**+7.0****	**+6.5***	**+11.9****	**+9.0***	+3.5	**+19.2*****
Physical therapy									
Cohort 1 (1985-86/1986-87)	.6	.8	3.7	.3	.6	5.9	41.9	4.9	28.4
	(.4)	(.7)	(1.1)	(.4)	(.5)	(2.2)	(4.1)	(2.2)	(5.1)
Cohort 2 (2001-02)	.8	.2	6.5	.4	4.2	16.1	46.8	3.1	36.5
	(.6)	(.4)	(1.7)	(.6)	(1.6)	(3.7)	(3.7)	(1.0)	(3.6)
Percentage-point change	+.2	-.6	+2.8	+.1	**+3.6***	**+10.2***	+4.9	-1.8	+8.1
Audiology									
Cohort 1 (1985-86/1986-87)	.0	.4	.4	.2	41.3	2.0	1.3	.1	3.7
		(.5)	(.4)	(.3)	(3.2)	(1.3)	(1.0)	(.3)	(2.1)
Cohort 2 (2001-02)	.7	3.2	1.9	1.1	65.7	11.1	2.0	1.2	10.6
	(.6)	(1.4)	(.9)	(.9)	(3.8)	(3.1)	(1.1)	(.6)	(2.4)
Percentage-point change	+.7	+2.8	+1.5	+.9	**+24.4*****	**+9.1****	+.7	+1.1	**+6.9***
Orientation/mobility training									
Cohort 1 (1985-86/1986-87)	.0	.0	.0	.0	.1	11.7	.0	.1	.9
					(.2)	(3.1)		(.3)	(1.1)
Cohort 2 (2001-02)	.2	.3	3.4	.4	2.0	55.0	23.0	1.3	17.2
	(.3)	(.4)	(1.2)	(.6)	(1.1)	(4.8)	(3.2)	(.7)	(2.9)
Percentage-point change	+.2	+.3	**+3.4****	+.4	+1.9	**+43.3*****	**+23.0*****	+1.2	**+16.3*****

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

However, for other services, the categories of students for whom they might seem most directly applicable are not those that showed significant increases. For example, receipt of speech/language pathology services increased markedly among students with visual impairments (12 percentage points, $p<.01$) but not among those with speech impairments; receipt of physical therapy increased for students with hearing or visual impairments (4 and 10 percentage points, $p<.05$) but not among those with orthopedic impairments. This finding may result from the fact that the categories of students for whom particular services seem most directly relevant already were the most likely to be receiving them.

Health services show the most widespread increases, with five categories of students showing significant gains, ranging from 6 to 19 percentage points ($p<.05$ to $p<.001$). Notably, students with learning disabilities show no increases in receipt of any related services.

Differential Changes in Students' School Programs across Grade Levels

Students in NLTS and NLTS2 whose school programs are analyzed in this report spanned the middle and high school grade levels.[6] Given the differences in structure and emphasis in middle and high schools, it is reasonable to expect that some of the changes in school programs addressed thus far occurred differently among students at different grade levels. For example, it is possible that increases in taking some kinds of academic courses would be most evident in high school, in response to increased graduation or college entrance requirements. This section examines aspects of students' school programs that changed differentially across grade levels.[7]

Academic Course Taking

Although there are no significant differences for students across grade levels in changes in any academic or language arts course taking, participation in other kinds of academic classes changed significantly, often differentially across grade levels (Exhibit 3-13). For example, the increase in taking mathematics classes that was noted previously for students with disabilities as a whole occurred entirely among students in grade 10 or above; no changes are noted for middle school students or high school freshmen. The increase is particularly large for juniors (27 percentage points, $p<.001$). In contrast, significant increases in science course taking are noted across the grade span, although juniors again show the largest increase (37 percentage points, $p<.001$) and middle school students and high school freshmen the smallest (12 and 13 percentage points, $p<.01$). Increases in foreign language course taking also occurred across the grade span, ranging from 14 to 17 percentage points ($p<.05$ to $p<.001$). Social studies course taking increased at all grade levels except among seniors, ranging from 11 to 21 percentage points ($p<.05$ to $p<.001$).

Despite significant increases in their mathematics and science course taking, cohort 2 seniors with disabilities were significantly less likely to be taking those courses than other high school students with disabilities (74% of seniors vs. 92% of juniors taking mathematics, $p<.001$, and 60% vs. 75% taking science, $p<.05$). They also were less likely than juniors to be taking social studies (81% vs. 93%, $p<.05$). These differences may have resulted because seniors had met the credit requirements for those subjects in earlier years and chose not to take additional core academic courses in their senior year. A reduction in academic course taking could provide seniors with the opportunity to take nonacademic electives that would support achievement of their transition goals.

[6] For convenience, grades 7 and 8 are referred to as middle school grade levels and grades 9 through 12 are referred to as high school grade levels.

[7] Students with disabilities who were not assigned to a grade level are not included in the analyses in this section.

Exhibit 3-13
CHANGES IN ACADEMIC COURSE TAKING IN ANY SETTING BY STUDENTS WITH DISABILITIES, BY GRADE LEVEL

	7th or 8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Percentage taking:					
Mathematics					
Cohort 1 (1985-86/1986-87)	96.7 (1.8)	96.0 (1.5)	86.6 (2.5)	65.5 (3.9)	49.7 (5.4)
Cohort 2 (2001-02)	99.3 (.9)	98.0 (1.3)	97.0 (1.4)	92.3 (2.3)	73.7 (5.1)
Percentage-point change	+2.6	+2.0	**+10.4*** **	**+26.8*** **	**+24.0*** **
Science					
Cohort 1 (1985-86/1986-87)	86.4 (3.5)	79.2 (3.2)	68.2 (3.4)	38.0 (4.0)	33.7 (5.1)
Cohort 2 (2001-02)	98.3 (1.5)	91.9 (2.5)	90.0 (2.4)	75.2 (3.8)	60.3 (5.8)
Percentage-point change	**+11.9** **	**+12.7** **	**+21.8*** **	**+37.2*** **	**+26.6*** **
Social studies					
Cohort 1 (1985-86/1986-87)	84.7 (3.7)	74.6 (3.4)	66.6 (3.4)	80.9 (3.2)	83.5 (4.0)
Cohort 2 (2001-02)	97.4 (1.8)	85.8 (3.2)	88.0 (2.7)	93.1 (2.2)	80.6 (4.6)
Percentage-point change	**+12.7** **	**+11.2** *	**+21.4*** **	**+12.2** **	-2.9
A foreign language					
Cohort 1 (1985-86/1986-87)	8.0 (2.8)	6.3 (1.9)	4.8 (1.6)	6.9 (2.1)	4.4 (2.2)
Cohort 2 (2001-02)	21.7 (4.6)	21.4 (3.6)	21.5 (3.3)	23.7 (3.6)	18.5 (4.4)
Percentage-point change	**+13.7** *	**+15.1*** **	**+16.7*** **	**+16.8*** **	**+14.1** **

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change for at least one category of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Nonacademic Course Taking

No consistent pattern across grade levels is found regarding changes in taking various kinds of nonacademic courses by students with disabilities (Exhibit 3-14). Significant increases in overall course taking are found only for juniors (12 percentage points, $p<.05$). However, the largest increase in taking fine arts courses occurred among middle school students (28 percentage points, $p<.001$), with increases also noted for sophomores and juniors (21 and 23 percentage points, $p<.001$). The significant increases in life skills course taking were among freshmen and sophomores (11 and 12 percentage points, $p<.05$). Finally, the overall decline in vocational education course taking that was noted previously for students with disabilities as a whole occurred only among students who were in 10th grade or above; declines were 15 and 16 percentage points across those grade levels ($p<.05$ and $p<.01$). This pattern suggests that older students with disabilities in cohort 2 were not taking the more advanced courses in a particular occupational sequence that could prepare them to assume jobs in those occupational areas or provide the prerequisite skills for more advanced training upon leaving high school.

Exhibit 3-14
CHANGES IN NONACADEMIC COURSE TAKING IN ANY SETTING BY STUDENTS WITH DISABILITIES, BY GRADE LEVEL

	7th or 8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Percentage taking:					
Any nonacademic course					
Cohort 1 (1985-86/1986-87)	92.6	90.2	80.9	73.1	76.4
	(2.7)	(2.3)	(2.9)	(3.7)	(4.6)
Cohort 2 (2001-02)	95.6	95.7	87.5	85.3	81.7
	(2.3)	(1.8)	(2.6)	(3.0)	(4.4)
Percentage-point change	+3.0	+5.5	+6.6	**+12.2***	+5.3
Vocational education					
Cohort 1 (1985-86/1986-87)	42.4	64.6	71.7	84.1	82.2
	(5.0)	(3.7)	(3.3)	(3.0)	(4.1)
Cohort 2 (2001-02)	54.9	54.1	56.7	68.3	66.9
	(5.6)	(4.4)	(4.0)	(4.0)	(5.4)
Percentage-point change	+12.5	-10.5	**-15.0****	**-15.8****	**-15.3***
Fine arts/performing arts					
Cohort 1 (1985-86/1986-87)	49.1	36.1	27.1	23.6	27.4
	(5.1)	(3.7)	(3.2)	(3.5)	(4.8)
Cohort 2 (2001-02)	77.3	39.9	47.7	46.7	39.9
	(4.7)	(4.3)	(4.0)	(4.2)	(5.6)
Percentage-point change	**+28.2*****	+3.8	**+20.6*****	**+23.1*****	+12.5
Life skills/study skills					
Cohort 1 (1985-86/1986-87)	28.8	23.0	20.8	26.1	38.0
	(4.6)	(3.3)	(3.0)	(3.6)	(5.2)
Cohort 2 (2001-02)	35.6	34.1	33.1	36.1	31.7
	(5.3)	(4.2)	(3.8)	(4.1)	(5.3)
Percentage-point change	+6.8	**+11.1***	**+12.3***	+10.0	-6.3

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change over time for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Although seniors were less likely to be taking some academic classes than other high school students, they were not correspondingly more likely to be taking nonacademic classes, suggesting that seniors had a lighter course load overall than students at lower high school grade levels.

Instructional Settings

The significant decline in participation in special education classes that occurred for students with disabilities as a whole is evident for students at all grade levels (Exhibit 3-15). Because of the particularly large decline among high school seniors (31 percentage points, $p<.001$), seniors with disabilities were significantly less likely to be taking any special education classes than students at other high school grade levels (54% vs. 71% to 73%, $p<.01$). In contrast to the lack of change in general education participation noted for students with disabilities as a whole, high school freshmen show a significant increase in the likelihood of taking at least one course in a general education class (8 percentage points, $p<.05$). They also are the only grade level to show a significant increase in the likelihood that their schools had a policy of providing

Exhibit 3-15
CHANGES IN INSTRUCTIONAL SETTINGS OF STUDENTS WITH DISABILITIES, BY GRADE LEVEL

	7th or 8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Percentage receiving any instruction in:					
General education classes					
Cohort 1 (1985-86/1986-87)	89.5 (3.0)	85.1 (2.7)	87.0 (2.4)	90.3 (2.4)	91.3 (2.9)
Cohort 2 (2001-02)	95.3 (2.4)	93.4 (2.2)	87.9 (2.6)	87.9 (2.8)	85.3 (4.1)
Percentage-point change	+5.8	**+8.3***	+.9	-2.4	-6.0
Special education classes					
Cohort 1 (1985-86/1986-87)	93.4 (2.4)	91.4 (2.1)	87.0 (2.4)	92.1 (2.2)	85.5 (3.7)
Cohort 2 (2001-02)	69.1 (5.2)	72.5 (4.0)	71.3 (3.6)	72.6 (3.8)	54.2 (5.7)
Percentage-point change	**-24.3*****	**-18.9*****	**-15.7*****	**-19.5*****	**-31.3*****

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change over time for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, ***=p<.001.

smaller classes or smaller student loads to general education teachers who had students with disabilities in their classes (a 32-percentage-point increase, p<.001). Of other supports provided to general education teachers that were investigated in NLTS and NLTS2, only providing inservice training on the needs of students with disabilities changed differentially for students across the grade range; high school juniors and seniors were the only students whose schools were more likely to provide this form of general education teacher support.

Students in middle and high school show differences in some of these changes. Increases in the prevalence of policies regarding inservice training were more common among schools attended by juniors and seniors in high school than by students at other grade levels (33 and 36 percentage points vs. 20 to 24 percentage points for other grade levels). However, the increase in policies to provide smaller classes was much greater in schools attended by 9th-grade students (32 percentage points vs. 14 to 24 percentage points at other grade levels).

Instructional settings for academic courses. Ninth graders show the only widespread change in instructional settings for academic courses (Exhibit 3-16). Cohort 2 high school freshmen were significantly more likely to be taking every kind of academic course in a general education class than were their peers in cohort 1, ranging from a 14-percentage-point increase in the proportion of freshmen with disabilities taking any academic course in general education classes to a 21-percentage-point increase among freshmen with disabilities who were taking science in general education classes. For all kinds of courses except mathematics, these increases were accompanied by significant declines in taking courses in special education classes. (There were no significant changes in mathematics course taking in special education classes for students at any grade level.)

Exhibit 3-16
CHANGES IN ACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES, BY INSTRUCTIONAL SETTING AND GRADE LEVEL

	7th or 8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Percentage taking course in setting:					
Any academic course					
General education class					
Cohort 1 (1985-86/1986-87)	66.3	62.3	64.9	62.0	66.1
	(4.9)	(3.8)	(3.5)	(4.1)	(5.2)
Cohort 2 (2001-02)	76.3	76.6	70.9	66.1	71.5
	(4.8)	(3.8)	(3.7)	(4.0)	(5.3)
Percentage-point change	+10.0	**+14.3****	+6.0	+4.1	+5.4
Special education class					
Cohort 1 (1985-86/1986-87)	70.9	75.0	66.8	65.1	63.8
	(4.7)	(3.4)	(3.5)	(4.0)	(5.2)
Cohort 2 (2001-02)	62.2	59.1	59.0	61.6	45.9
	(5.4)	(4.4)	(4.0)	(4.1)	(5.8)
Percentage-point change	-8.7	**-15.9****	-7.8	-3.5	**-17.9***
Language arts					
General education class					
Cohort 1 (1985-86/1986-87)	49.4	40.1	47.4	42.9	48.7
	(5.2)	(3.9)	(3.7)	(4.2)	(5.7)
Cohort 2 (2001-02)	47.9	55.2	47.6	46.1	56.3
	(5.6)	(4.5)	(4.1)	(4.4)	(6.0)
Percentage-point change	-1.5	**+15.1***	+.2	+3.2	+7.6
Special education class					
Cohort 1 (1985-86/1986-87)	67.1	64.7	60.0	61.9	56.6
	(4.9)	(3.8)	(3.6)	(4.1)	(5.7)
Cohort 2 (2001-02)	57.5	50.6	54.6	57.3	44.0
	(5.6)	(4.5)	(4.1)	(4.4)	(6.0)
Percentage-point change	-9.6	**-14.1***	-5.4	-4.6	-12.6
Mathematics					
General education class					
Cohort 1 (1985-86/1986-87)	48.2	43.2	49.0	47.6	50.5
	(5.2)	(3.9)	(3.9)	(5.0)	(7.3)
Cohort 2 (2001-02)	49.3	57.8	55.9	51.8	53.0
	(5.7)	(4.5)	(4.1)	(4.5)	(6.8)
Percentage-point change	+1.1	**+14.6***	+6.9	+4.2	+2.5

Exhibit 3-16
CHANGES IN ACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES, BY INSTRUCTIONAL SETTING AND GRADE LEVEL (Concluded)

	7th or 8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Percentage taking course in setting:					
Science					
General education class					
Cohort 1 (1985-86/1986-87)	63.1	53.5	60.0	60.0	68.8
	(5.3)	(4.4)	(4.3)	(6.3)	(8.9)
Cohort 2 (2001-02)	68.8	74.3	65.1	59.9	72.0
	(5.3)	(4.2)	(4.1)	(4.9)	(6.8)
Percentage-point change	+5.7	**+20.8*** **	+5.1	-.1	+3.2
Special education class					
Cohort 1 (1985-86/1986-87)	38.2	47.6	40.9	40.5	37.6
	(5.3)	(4.4)	(4.3)	(6.3)	(9.3)
Cohort 2 (2001-02)	33.6	30.9	37.8	42.8	30.5
	(5.4)	(4.4)	(4.2)	(5.0)	(7.0)
Percentage-point change	-4.6	**-16.7****	-3.1	2.3	-7.1
Social studies					
General education class					
Cohort 1 (1985-86/1986-87)	58.2	50.8	56.1	55.6	59.3
	(5.5)	(4.5)	(4.5)	(4.6)	(5.9)
Cohort 2 (2001-02)	69.0	71.2	63.1	60.8	63.4
	(5.3)	(4.4)	(4.2)	(4.4)	(6.4)
Percentage-point change	+10.8	**+20.4*** **	+7.0	+5.2	+4.1
Special education class					
Cohort 1 (1985-86/1986-87)	42.6	49.7	44.4	46.5	47.9
	(5.5)	(4.5)	(4.45)	(4.6)	(6.0)
Cohort 2 (2001-02)	32.1	34.2	40.4	40.7	38.7
	(5.4)	(4.6)	(4.3)	(4.4)	(6.4)
Percentage-point change	-10.5	**-15.5***	-4.0	-5.8	-9.2

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change for at least one category of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

The decrease in special education course participation noted previously for high school seniors resulted entirely from a decrease in participation in special education academic classes overall (18 percentage points, p<.05); no changes in settings for particular kinds of academic classes attain statistical significance.

Instructional settings for nonacademic courses. Changes in instructional settings across types of nonacademic classes were more widespread than those for academic classes (Exhibit 3-17). For example, a decline in taking any nonacademic courses in general education classes occurred among students with disabilities in 10th grade and above, ranging from 12 to 15 percentage points (p<.01 and p<.001). Corresponding increases in special education course taking for any nonacademic subjects were even more consistent, affecting students at all grade levels; increases range from 19 percentage points among seniors (p<.05) to 35 percentage points among juniors (p<.001). Changes across grade levels resulted largely from marked shifts of life skills or study skills classes over time from general education to special education settings for students at all grade levels except ninth grade. In contrast, 9th graders are the only group to

Exhibit 3-17
CHANGES IN NONACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES, BY INSTRUCTIONAL SETTING AND GRADE LEVEL

	7th or 8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Percentage taking course in setting:					
Any nonacademic course					
General education class					
Cohort 1 (1985-86/1986-87)	94.5 (2.4)	92.8 (2.1)	95.1 (1.8)	95.6 (1.9)	97.1 (2.1)
Cohort 2 (2001-02)	93.9 (2.7)	91.4 (2.6)	83.1 (3.2)	81.3 (3.6)	82.0 (4.9)
Percentage-point change	-.6	-1.4	**-12.0****	**-14.3*****	**-15.1****
Special education class					
Cohort 1 (1985-86/1986-87)	12.3 (3.3)	21.4 (5.0)	16.8 (2.9)	13.9 (3.3)	17.1 (4.7)
Cohort 2 (2001-02)	40.5 (5.6)	46.2 (4.6)	47.9 (4.2)	48.5 (4.6)	36.4 (6.1)
Percentage-point change	**+28.2*****	**+24.8*****	**+31.1*****	**+34.6*****	**+19.3***
Fine/performing arts					
General education class					
Cohort 1 (1985-86/1986-87)	92.2 (4.0)	78.4 (5.6)	84.9 (5.0)	91.6 (4.4)	96.6 (3.5)
Cohort 2 (2001-02)	95.0 (2.9)	92.8 (3.5)	84.0 (4.1)	88.0 (4.2)	92.7 (4.6)
Percentage-point change	+2.8	**+14.4***	-.9	-3.6	-3.9
Special education class					
Cohort 1 (1985-86/1986-87)	7.8 (4.0)	22.7 (5.7)	15.1 (5.0)	8.5 (4.4)	4.0 (3.8)
Cohort 2 (2001-02)	5.3 (2.9)	7.7 (3.6)	15.3 (4.0)	10.1 (3.9)	8.1 (4.9)
Percentage-point change	-2.5	**-15.0***	+.2	+1.6	+4.1
Life skills/study skills					
General education class					
Cohort 1 (1985-86/1986-87)	84.3 (6.4)	55.3 (7.8)	63.5 (7.4)	80.5 (6.2)	76.3 (7.7)
Cohort 2 (2001-02)	34.9 (7.2)	46.5 (7.4)	34.0 (6.1)	35.4 (6.4)	35.4 (9.1)
Percentage-point change	**-49.4*****	-8.8	**-29.5****	**-45.1*****	**-40.9*****
Special education class					
Cohort 1 (1985-86/1986-87)	16.8 (6.6)	45.4 (7.8)	36.9 (7.4)	21.1 (6.4)	23.8 (7.7)
Cohort 2 (2001-02)	57.6 (7.5)	49.6 (7.4)	65.4 (6.1)	64.5 (6.4)	51.3 (9.5)
Percentage-point change	**+40.8*****	+4.2	**+28.5****	**+43.4*****	**+27.5***

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change for at least one category of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01, *** p<.001.

show a significant increase in taking fine arts or performing arts courses in general education classes (14 percentage points, $p<.05$), with a decline in taking such courses in special education classes of similar magnitude (15 percentage points, $p<.05$).

Related Services

There are very few differences across grade levels in the extent to which students with disabilities show changes in the receipt of the various related services investigated in NLTS and NLTS2. Exceptions are a 10-percentage-point increase in receipt of mental health services and a 6-percentage-point increase in receipt of health services among 10th-grade students with disabilities ($p<.05$ and $p<.01$) and an 8-percentage-point increase in receipt of social work services among high school juniors ($p<.05$).

Differential Changes in Students' School Programs across Demographic Groups

This section examines aspects of students' school programs that changed differentially over time for boys and girls with disabilities and for students who differed in their household income and racial/ethnic background.

Differential Changes in School Programs Related to Gender

For the most part, boys and girls with disabilities show similar changes in their school programs over time. However, there are some notable exceptions, most of which closed the gap in course taking that existed among cohort 1 boys and girls (Exhibit 3-18). Regarding academic course taking, although both boys and girls with disabilities show significant increases in enrollment in foreign language courses, the increase is twice as large among boys (18 percentage points, $p<.001$, compared with 9 percentage points for girls, $p<.01$), eliminating the significant difference in taking such courses that existed in cohort 1 (4% for boys vs. 9% for girls, $p<.05$).

The increase in enrollment in nonacademic courses among students with disabilities overall occurred entirely among boys with disabilities, who show a 9-percentage-point increase in nonacademic course enrollment. Enrollment in fine arts courses increased more among boys (16 percentage points, $p<.001$) than among girls (11 percentage points, $p<.05$), again eliminating the difference between cohort 1 boys and girls in taking such courses (30% vs. 42%, $p<.01$). Similarly, the significant increase in students with disabilities taking life skills courses occurred only among boys, with a 14-percentage-point increase in life skills course enrollment ($p<.001$). This change eliminated the significant gender difference in life skills course taking that existed in cohort 1 (20% of cohort 1 boys were taking life skills, compared with 42% of girls, $p<.001$). The decline in vocational education course taking among students with disabilities as a whole also occurred entirely among boys (12 percentage points, $p<.01$).

There also were some differences between genders regarding changes in instructional settings. Specifically, although both cohort 2 boys and girls were less likely than their cohort 1 peers to take courses in special education settings, the decline was somewhat larger among boys than among girls (21 vs. 16 percentage points, $p<.001$ for both comparisons). In contrast, the increase in receiving instruction in a vocational center occurred entirely among girls (6 percentage points, $p<.01$).

Exhibit 3-18
CHANGES IN THE SCHOOL PROGRAMS OF STUDENTS WITH DISABILITIES, BY GENDER

	Boys			Girls		
	Cohort 1 (1985-86/ 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change	Cohort 1 (1985-86/ 1986-87)	Cohort 2 (2001-02)	Percentage-Point Change
Percentage taking:						
A foreign language	4.4 (1.0)	22.5 (2.1)	**18.1*** **	8.9 (2.0)	18.2 (2.7)	**+9.3** **
Any nonacademic course	80.6 (2.0)	89.4 (1.5)	**+8.8*** **	90.0 (2.1)	88.2 (2.3)	-1.8
Vocational education	74.0 (2.2)	62.3 (2.4)	**-11.7** **	62.0 (3.5)	58.5 (3.4)	-3.5
Fine arts/performing arts	29.8 (2.3)	46.3 (2.5)	**+16.5*** **	42.0 (3.5)	53.3 (3.5)	**+11.3** *
Life skills/study skills	19.9 (2.0)	34.1 (2.4)	**+14.2*** **	42.1 (3.5)	38.1 (3.4)	-4.0
Percentage taking any course in:						
A special education class	90.1 (1.4)	68.9 (2.3)	**-21.2*** **	87.8 (2.2)	71.9 (3.2)	**-15.9*** **
A vocational center	3.2 (.9)	6.3 (1.2)	+3.1	1.8 (.9)	7.5 (1.9)	**+5.7** **
Percentage taking course in setting:						
Any academic course in special education	70.2 (2.3)	58.6 (2.5)	**-11.6*** **	69.2 (3.4)	60.2 (3.5)	-9.0
Math in general education	45.3 (2.8)	54.6 (2.6)	**+9.3** *	40.2 (3.9)	49.1 (3.7)	+8.9
Any nonacademic course in general education	93.5 (1.4)	84.7 (1.9)	**-8.8*** **	94.6 (1.7)	81.9 (2.9)	**-12.7*** **
Life skills/study skills in:						
A general education class	55.5 (5.4)	36.1 (3.7)	**-19.4** **	70.7 (4.7)	35.3 (5.1)	**-35.4*** **
A special education class	44.6 (5.4)	62.7 (3.8)	**+18.1** **	27.4 (4.7)	56.4 (5.3)	**+27.0*** **
Percentage receiving from their school:						
Health services	3.4 (.9)	5.9 (1.3)	+2.5	2.5 (1.1)	7.2 (2.0)	**+4.7** *
Assistive devices/adaptations	2.7 (.8)	7.6 (1.4)	**+4.9*** **	3.6 (1.3)	8.6 (2.2)	+5.0

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only factors for which there was a significant change in at least one category of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Patterns of change in the instructional settings in which boys and girls with disabilities were taking specific kinds of courses also differ. Boys with disabilities who were taking academic courses show a significant decline in taking academic courses in special education settings (12 percentage points, $p<.001$) that is not evident among girls (9 percentage points, not statistically significant). In contrast, girls with disabilities who were taking nonacademic courses in general and life skills or study skills in particular show larger declines in the likelihood that they were in general education classrooms. Girls show a 13-percentage-point decline in taking nonacademic courses in general education classrooms ($p<.001$) and a 35-percentage-point reduction in their life skills courses occurring in that setting ($p<.001$), compared with 9- and 19-percentage-point declines among boys with disabilities ($p<.001$ and $p<.01$). Consistent with this pattern, girls' life skills course taking in special education settings increased more than boys' (27 percentage points, $p<.001$, compared with 18 percentage points for boys, $p<.01$).

Finally, regarding related services provided to students with disabilities, only the increases in provision of health services and assistive devices differs between genders. The increase in health services is statistically significant only among girls with disabilities (5 percentage points, $p<.05$), whereas the increase in provision of assistive devices is significant only for boys (5 percentage points, $p<.01$).

Differential Changes in School Programs Related to Household Income and Racial/Ethnic Background

Academic course taking. Reflecting the experiences of students with disabilities as a whole, there were no significant increases for any income or racial/ethnic group in either academic course taking overall or in taking language arts. However, enrollment in other kinds of academic courses increased over time for students at all income levels (Exhibit 3-19). Yet, there is no consistent pattern of increases across income groups. For example, math course taking increased the most among students from households with the lowest incomes (12 percentage points, $p<.01$), whereas enrollment in foreign language courses increased the most for those in the highest income category (20 percentage points, $p<.001$). This increase in foreign language course taking among wealthier students with disabilities resulted in their having a significantly higher likelihood of taking such classes than other students (27% vs. 18% and 16%, $p<.05$ for both comparisons).

White, African-American, and Hispanic students with disabilities all show increases in enrollment in some kinds of academic courses. However, compared with their peers in other racial/ethnic groups, Hispanic students show the largest increases over time in science, social studies, and foreign language course taking—from 18 to 35 percentage points ($p<.05$ to $p<.001$).

Exhibit 3-19
CHANGES IN ACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES, BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	Lowest	Middle	Highest	White	African American	Hispanic
Percentage taking:						
Mathematics						
Cohort 1 (1985-86/1986-87)	82.2 (3.4)	84.3 (3.0)	80.5 (2.7)	81.1 (1.9)	83.2 (3.5)	83.5 (6.0)
Cohort 2 (2001-02)	94.0 (1.8)	92.2 (2.2)	91.1 (2.3)	93.0 (1.3)	91.9 (2.5)	90.9 (3.5)
Percentage-point change	**+11.8****	**+7.8***	**+10.6***	**+11.9*****	**+8.7***	+7.4
Science						
Cohort 1 (1985-86/1986-87)	63.0 (4.3)	62.1 (4.0)	62.2 (3.3)	60.6 (2.4)	70.0 (4.3)	49.4 (8.1)
Cohort 2 (2001-02)	83.7 (2.8)	82.1 (3.1)	82.9 (3.0)	82.7 (1.9)	83.5 (3.4)	84.0 (4.6)
Percentage-point change	**+20.7*****	**+20.0*****	**+20.7*****	**+22.1*****	**+13.5***	**+34.6*****
Social studies						
Cohort 1 (1985-86/1986-87)	75.5 (3.8)	72.5 (3.7)	75.1 (2.9)	73.5 (2.2)	78.6 (3.8)	72.3 (7.3)
Cohort 2 (2001-02)	88.2 (2.4)	88.5 (2.6)	87.2 (2.7)	88.3 (1.6)	86.5 (3.1)	89.8 (3.7)
Percentage-point change	**+12.7****	**+16.0*****	**+12.1****	**+14.8*****	+7.9	**+17.5***
A foreign language						
Cohort 1 (1985-86/1986-87)	6.0 (2.1)	5.5 (1.9)	7.6 (1.8)	5.3 (1.1)	4.3 (1.9)	16.2 (6.0)
Cohort 2 (2001-02)	17.6 (2.8)	16.2 (3.0)	27.2 (3.5)	18.6 (2.0)	15.9 (3.3)	40.0 (5.9)
Percentage-point change	**+11.6****	**+10.7****	**+19.6*****	**+13.3*****	**+11.6****	**+23.8****

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only courses for which there was a significant change for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Nonacademic course taking. No significant changes in physical education enrollment are noted for any income or racial/ethnic group. However, other changes in nonacademic course taking occurred differently across these groups (Exhibit 3-20). Students from households in the lowest income group show the only significant increase over time in taking any nonacademic course (8 percentage points, $p<.05$) and in taking life skills or study skills courses (14 percentage points, $p<.01$). In contrast, students from wealthier families show the only decrease in vocational course taking (16 percentage points, $p<.001$). Both of these groups show significant increases in enrollment in fine arts courses (15 and 13 percentage points, $p<.01$ and $p<.05$). The middle income group shows no changes over time in nonacademic course taking.

Changes in nonacademic course taking are noted for white and African-American students with disabilities. African-American students show the only significant increase in nonacademic course taking overall (8 percentage points, $p<.05$). They also show the largest increase in

Exhibit 3-20
CHANGES IN NONACADEMIC COURSE TAKING BY STUDENTS WITH DISABILITIES, BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	Lowest	Middle	Highest	White	African American	Hispanic
Any nonacademic course						
Cohort 1 (1985-86/1986-87)	81.7 (3.4)	86.1 (2.9)	83.6 (2.5)	84.0 (1.8)	83.5 (3.5)	82.7 (6.2)
Cohort 2 (2001-02)	89.7 (2.2)	87.5 (2.7)	88.4 (2.5)	88.7 (1.6)	92.0 (2.4)	84.0 (4.4)
Percentage-point change	**+8.0***	+1.4	+4.8	+4.7	**+8.5***	+1.3
Vocational education						
Cohort 1 (1985-86/1986-87)	68.4 (4.1)	72.0 (3.7)	73.7 (3.0)	73.0 (2.2)	64.8 (4.5)	64.0 (7.8)
Cohort 2 (2001-02)	63.5 (3.5)	61.9 (3.9)	57.3 (3.9)	59.8 (2.5)	65.0 (4.3)	59.5 (5.9)
Percentage-point change	-4.9	-10.1	**-16.4*****	**-13.2*****	.2	-4.5
Fine/performing arts						
Cohort 1 (1985-86/1986-87)	32.4 (4.2)	39.5 (4.0)	37.5 (3.3)	34.7 (2.4)	30.9 (4.3)	32.8 (7.6)
Cohort 2 (2001-02)	47.5 (3.7)	44.2 (4.0)	50.5 (3.9)	47.6 (2.5)	51.7 (4.5)	49.2 (6.0)
Percentage-point change	**+15.1****	+4.7	**+13.0***	**+12.9*****	**+20.8*****	+16.4
Life skills/study skills						
Cohort 1 (1985-86/1986-87)	26.5 (3.9)	23.5 (3.5)	29.1 (3.1)	27.4 (2.2)	25.5 (4.1)	23.3 (6.9)
Cohort 2 (2001-02)	40.2 (3.6)	32.2 (3.8)	32.6 (3.7)	35.7 (2.4)	39.3 (4.4)	29.1 (5.4)
Percentage-point change	**+13.7****	+8.7	+3.5	**+8.3***	**+13.8***	+5.8

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only courses for which there was a significant change for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

taking fine arts and life skills or study skills courses (21 and 14 percentage points, p<.001 and p<.05). The pattern of change over time in these courses for African-American students mirrors that of students from the lowest income level, reflecting the fact that African-American students with disabilities are more likely than white students to live in households in poverty (Marder, Levine, Wagner, & Cardoso, 2003). Although Hispanic students also have higher rates of poverty, they do not exhibit higher levels of enrollment in nonacademic courses.

The only decline in vocational education enrollment is noted for white students (13 percentage points, p<.001). This finding also reflects the variations observed for differences related to household income. Students from households with the highest income also had the largest decrease; white students are more likely to be members of these families (Marder, Levine, Wagner, & Cardoso, 2003).

Instructional settings. Similar to students with disabilities as a whole, no income or racial/ethnic groups show changes in the likelihood of taking any general education course, although increases in the likelihood that they were attending schools with policies of providing various forms of support to general education teachers who had students with disabilities in their classes generally occurred similarly across income and racial/ethnic groups. The one exception is that African-American students with disabilities do not show the significant increase in their schools' providing special equipment or materials to teachers for use with students with disabilities that occurred for white students (30 percentage points, $p<.001$) or Hispanic students (29 percentage points, $p<.01$).

Students in all groups show significant declines in their enrollment in special education classes. Declines in special education instruction were largest among students in the highest income group (23 percentage points, $p<.001$, compared with 16 and 20 percentage points for the lowest and middle income groups, $p<.001$) and among white students with disabilities (23 percentage points, $p<.001$, compared with 11 and 18 percentage points for African-American and Hispanic students with disabilities, $p<.01$).

Changes in the settings in which students with disabilities were taking specific kinds of academic courses also differ across income and racial/ethnic groups (Exhibit 3-21). Enrollment in general education academic classes as a whole changed significantly over time only for students in the lowest income group (16 percentage points, $p<.01$). They also show the only significant increases in general education courses in math (12 percentage points, $p<.05$), science (18 percentage points, $p<.05$), and social studies (16 percentage points, $p<.01$). An accompanying decline in special education academic course taking for this group occurred only for social studies courses (17 percentage points, $p<.01$). Students from middle- and higher-income households show significant changes only with regard to declines in enrollment in any special education academic class (13 and 11 percentage points, $p<.05$ for both changes).

Racial/ethnic differences in instructional settings for academic courses also are noted. Specifically, none of the changes in settings for academic courses that were noted previously for students with disabilities as a whole were shared by African-American students. Except for language arts, white students show consistent increases in general education academic class enrollment, including 7-percentage-point increases in taking any general education class and in enrollment in general education math courses ($p<.05$ for both increases), an 8-percentage-point-increase in general education science course enrollment ($p<.05$), and a 10-percentage-point increase in general education social studies course enrollment ($p<.01$). White students also show a significant decline in their participation in special education academic courses overall (13 percentage points, $p<.001$) and 10- and 8-percentage-point declines in language arts and social studies courses taught in special education settings ($p<.01$ and $p<.05$). With a 23-percentage-point increase in their rate of enrollment in general education academic courses ($p<.05$), Hispanic students show the largest increase in general education academic course taking. Although percentage-point changes for Hispanic students' enrollment in some specific types of general education classes also are large, none reach statistical significance.

Exhibit 3-21
CHANGES IN INSTRUCTIONAL SETTINGS FOR ACADEMIC COURSES, BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	Lowest	Middle	Highest	White	African American	Hispanic
Percentage taking course in setting						
Any academic course						
General education class						
Cohort 1 (1985-86/1986-87)	45.1	64.9	73.2	67.0	47.9	45.8
	(4.5)	(4.0)	(3.0)	(2.4)	(4.8)	(8.4)
Cohort 2 (2001-02)	61.0	69.1	79.0	74.2	58.8	68.9
	(3.6)	(3.8)	(3.2)	(2.2)	(4.5)	(5.6)
Percentage-point change	**+15.9****	+4.2	+5.8	**+7.2***	+10.9	**+23.1***
Special education class						
Cohort 1 (1985-86/1986-87)	79.9	71.5	58.7	66.5	79.3	69.8
	(3.6)	(3.8)	(3.4)	(2.4)	(3.9)	(7.7)
Cohort 2 (2001-02)	70.8	58.1	48.1	53.8	73.0	62.6
	(3.4)	(4.0)	(4.0)	(2.5)	(4.0)	(5.9)
Percentage-point change	-9.1	**-13.4***	**-10.6***	**-12.7*****	-6.3	-7.2
Language arts course						
Special education class						
Cohort 1 (1985-86/1986-87)	75.6	62.4	52.2	58.6	74.9	67.1
	(3.9)	(4.1)	(3.5)	(2.5)	(4.2)	(8.1)
Cohort 2 (2001-02)	66.4	52.9	44.8	48.9	69.4	57.1
	(3.6)	(4.2)	(4.0)	(2.6)	(4.3)	(6.1)
Percentage-point change	-9.2	-9.5	-7.4	**-9.7****	-5.5	-10.0
Math course						
General education class						
Cohort 1 (1985-86/1986-87)	29.8	45.1	59.8	49.3	32.2	33.7
	(4.5)	(4.5)	(3.7)	(2.8)	(4.8)	(8.5)
Cohort 2 (2001-02)	41.5	52.5	64.6	56.7	41.6	49.7
	(3.8)	(4.3)	(3.9)	(2.6)	(4.6)	(6.2)
Percentage-point change	**+11.7***	+7.4	+4.8	**+7.4***	+9.4	+16.0
Science course						
General education class						
Cohort 1 (1985-86/1986-87)	41.8	61.7	67.4	62.4	46.2	47.3
	(5.6)	(5.2)	(4.1)	(3.1)	(5.8)	(11.5)
Cohort 2 (2001-02)	57.6	65.0	74.8	70.5	54.0	66.0
	(4.1)	(4.4)	(3.8)	(2.6)	(5.0)	(6.5)
Percentage-point change	**+17.6***	+10.3	+7.4	**+8.1***	+7.8	+18.7
Social studies course						
General education class						
Cohort 1 (1985-86/1986-87)	37.6	53.6	65.5	59.4	41.5	39.2
	(5.0)	(4.9)	(3.7)	(2.9)	(5.45)	(9.3)
Cohort 2 (2001-02)	55.2	63.9	70.2	69.4	50.5	60.0
	(4.0)	(4.3)	(3.9)	(2.5)	(4.9)	(6.4)
Percentage-point change	**+15.8****	+7.6	+4.7	**+10.0****	+9.0	+20.8
Special education class						
Cohort 1 (1985-86/1986-87)	64.3	48.2	36.1	42.3	60.1	61.2
	(5.0)	(4.96)	(3.8)	(2.9)	(5.3)	(9.3)
Cohort 2 (2001-02)	47.4	38.9	31.3	33.9	52.5	40.7
	(4.0)	(4.4)	(4.0)	(2.6)	(4.9)	(6.4)
Percentage-point change	**-16.9****	-9.3	-4.8	**-8.4***	-7.6	-20.5

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only courses for which there was a significant change for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

There were declines of between 9 and 11 percentage points for students across the income groups in their enrollment in any general education nonacademic course ($p<.05$ and $p<.01$; Exhibit 3-22). Corresponding increases are seen for enrollment in any nonacademic special education class; students in the middle income category show a 31-percentage-point increase ($p<.001$), those in the highest category a 29-percentage-point increase ($p<.001$), and those in the lowest income group a 21-percentage-point gain ($p<.001$). Large declines (39 and 32 percentage points, $p<.001$) are noted for enrollment in general education life skills or study skills courses among those in the middle and highest income categories; conversely, large increases (32 and 28 percentage points, $p<.001$) are seen for these same groups in their enrollment in life skills or study skills courses taught in special education settings. Students in the lowest income category do not show significant changes in their enrollment in general or special education life skills or study skills courses, and no income group shows a significant change in other kinds of nonacademic courses.

Exhibit 3-22
CHANGES IN INSTRUCTIONAL SETTINGS FOR NONACADEMIC COURSES, BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	Lowest	Middle	Highest	White	African American	Hispanic
Percentage taking course in setting						
Any nonacademic course						
General education class						
Cohort 1 (1985-86/1986-87)	90.7 (2.8)	95.3 (1.9)	94.7 (1.7)	95.9 (1.1)	90.0 (3.1)	87.7 (5.8)
Cohort 2 (2001-02)	80.5 (3.1)	84.3 (3.1)	85.9 (2.9)	86.1 (1.8)	78.6 (3.9)	81.1 (5.0)
Percentage-point change	**-10.2***	**-11.0****	**-8.8****	**-9.8*****	**-11.4***	-6.6
Special education class						
Cohort 1 (1985-86/1986-87)	28.2 (4.4)	15.1 (3.2)	16.1 (2.7)	16.4 (2.0)	23.7 (4.4)	36.7 (8.6)
Cohort 2 (2001-02)	49.5 (3.9)	46.2 (4.3)	44.9 (4.2)	43.8 (2.6)	53.1 (4.7)	45.4 (6.3)
Percentage-point change	**+21.3*****	**+31.1*****	**+28.8*****	**+27.4*****	**+29.4*****	+8.7
Life skills/study skills						
General education class						
Cohort 1 (1985-86/1986-87)	49.6 (8.5)	68.7 (7.1)	73.2 (5.4)	65.7 (4.2)	61.7 (8.9)	34.6 (16.0)
Cohort 2 (2001-02)	34.3 (5.0)	29.9 (5.2)	41.2 (6.6)	38.3 (3.8)	23.6 (5.5)	38.9 (9.6)
Percentage-point change	-15.3	**-38.8*****	**-32.0*****	**-27.4*****	**-38.1*****	4.3
Special education class						
Cohort 1 (1985-86/1986-87)	50.4 (8.5)	31.3 (7.1)	26.9 (5.4)	34.3 (4.2)	38.3 (8.9)	65.4 (16.0)
Cohort 2 (2001-02)	62.7 (5.1)	63.3 (5.5)	55.2 (6.7)	57.2 (3.9)	71.9 (5.9)	62.9 (9.5)
Percentage-point change	+12.3	**+32.0*****	**+28.3*****	**+22.9*****	**+33.6****	-2.5

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Note: Only courses for which there was a significant change for at least one group of students are included in the exhibit.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, **=p<.01, ***=p<.001.

Changes in instructional settings for nonacademic course taking occurred only for white and African-American students with disabilities; no changes are noted for Hispanic students. White and African-American students show similar declines in general education nonacademic course taking, with increases of similar size in taking such courses in special education classes. However, African-American students with disabilities show a larger decline in taking general education life skills or study skills courses (38 percentage points, $p<.001$) than white students (27 percentage points, $p<.001$) and a corresponding larger increase in special education life skills or study skills course taking (34 percentage points, $p<.01$) than their white peers (23 percentage points, $p<.001$).

Related services. There are few differences across income levels or racial/ethnic groups in the extent of changes in the receipt by students with disabilities of the various related services investigated in NLTS and NLTS2 (Exhibit 3-23). Students in the lowest income category show the only significant increase in receipt of mental health services (10 percentage points, $p<.05$). Health service receipt increased significantly only for those in the middle income category (5 percentage points, $p<.05$). Students in the highest income group and white students show the only significant increases in the receipt of assistive devices and adaptations (7 and 6 percentage points, $p<.05$ and $p<.001$).

Exhibit 3-23
CHANGES IN RELATED SERVICES PROVIDED TO STUDENTS WITH DISABILITIES, BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	Lowest	Middle	Highest	White	African American	Hispanic
Percentage with IEP that specified receipt of:						
Mental health services						
Cohort 1 (1985-86/1986-87)	15.6 (3.2)	16.0 (3.0)	10.5 (2.0)	12.4 (1.6)	12.4 (3.1)	22.6 (6.4)
Cohort 2 (2001-02)	26.0 (3.5)	16.5 (3.3)	14.7 (3.1)	16.5 (2.0)	21.0 (4.0)	28.5 (6.1)
Percentage-point change	**+10.4***	+.5	+4.2	+4.1	+8.6	+5.9
Health services						
Cohort 1 (1985-86/1986-87)	4.3 (1.8)	1.1 (.9)	3.3 (1.2)	3.4 (.9)	3.4 (1.7)	0.6 (1.2)
Cohort 2 (2001-02)	6.3 (1.9)	5.9 (2.1)	6.2 (2.1)	6.6 (1.4)	6.7 (2.5)	4.9 (2.9)
Percentage-point change	+2.0	**+4.8***	+2.9	+3.2	+3.3	+4.3
Assistive devices/adaptations						
Cohort 1 (1985-86/1986-87)	3.0 (1.5)	3.2 (1.4)	2.8 (1.1)	2.7 (.8)	3.8 (1.8)	2.5 (2.4)
Cohort 2 (2001-02)	5.8 (1.8)	8.2 (2.4)	9.8 (2.6)	8.3 (1.5)	6.4 (2.4)	8.4 (3.7)
Percentage-point change	+2.8	+5.0	**+7.0***	**+5.6*****	+2.6	+5.9

Sources: NLTS school record abstract and NLTS2 Wave 1 student's school program survey.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: *=p<.05, ***=p<.001.

Summary

Students with disabilities have experienced important changes in their school programs since the mid-1980s that in many respects bode well for their future. Cohort 2 high school students with disabilities were much more likely than their cohort 1 counterparts to be taking core academic courses, including mathematics, science, social studies, and a foreign language. And increasingly, students with disabilities who were taking such courses were doing so in general education classes. This increased emphasis on general education academic course taking suggests that more students with disabilities are being offered the academic preparation needed for postsecondary education and employment. Further, they were increasingly likely to be attending schools that had policies of providing a variety of forms of support to their general education teachers, so that their chances of success in their general education classes were enhanced.

However, one apparent trade-off resulting from an increased emphasis on academic course taking is that nonacademic courses, particularly vocational education, which may be beneficial in helping students reach nonacademic transition goals, may be getting pushed out of the course schedules of many students with disabilities. Specifically, vocational course taking declined overall, so that only about 6 in 10 cohort 2 students with disabilities were taking it in spring 2002. This decline is worrisome in light of the fact that NLTS data suggest that vocational education, particularly courses that provide training for specific occupations, contributes to higher rates of employment among youth with disabilities in their early adult years (Wagner, Blackorby, et al., 1993). Declines in vocational course taking were largest among students with learning disabilities and speech impairments, the categories of youth for whom the benefits of vocational education were shown to be strongest in NLTS. However, these are the same students who showed substantial increases in enrollment in academic courses that may prepare them to enroll in postsecondary education at higher rates than were apparent at the time of NLTS. Postsecondary education could well have a beneficial effect on later employment that could equal or surpass that of secondary vocational education.

As participation in general education academic classes increased, there was a corresponding decline in participation in special education academic classes. In fact, 30% of cohort 2 students with disabilities were taking no special education classes at all in the spring of 2002, whereas only 9% of cohort 1 students with disabilities were not taking any special education courses in the 1985-86 or 1986-87 school year. However, this decline in overall special education course taking masks an increase in the likelihood that students with disabilities who were taking nonacademic courses were doing so in special education classes, largely because life skills or study skills instruction increasingly is the purview of special education. As mentioned, vocational education course taking declined over time among high school students, and, as with life skills or study skills courses, cohort 2 students with disabilities who were taking vocational education were more likely than cohort 1 students to be doing so in a special education class.

Several kinds of related services were more likely to be provided to cohort 2 than cohort 1 students, including mental health, social work, and health services; assistive devices and adaptations; and orientation and mobility training. However, each of the 11 kinds of related services investigated in both NLTS and NLTS2 was provided significantly more often to cohort 2 students than to cohort 1 students in at least one disability category. For the most part, increases in receipt of particular services were largest among students in categories for which

they were most directly applicable (e.g., orientation and mobility training increased largely among students with visual impairments, as would be expected), although increases in some kinds of services were more widespread.

However, some changes in school programs occurred to varying degrees for students who differed in their primary disability category. For example, some of the most pronounced changes in school programs occurred among students with multiple disabilities, whose programs differed most from those of other categories of students in cohort 1. They show the only significant increase in overall academic course taking, registering increases in taking every kind of academic course except a foreign language. Consistent with these changes, students with multiple disabilities also are the only category to demonstrate a significant increase in participation in general education classes overall. However, with the exception of language arts classes, most of the increase in general education course taking by students with multiple disabilities involved nonacademic courses, particularly fine arts and physical education. Despite these changes, however, cohort 2 students with multiple disabilities continued to be less likely to take academic or general education courses than students in other disability categories.

Students with multiple disabilities and those with mental retardation also show a significant increase in taking nonacademic courses, including both life skills and vocational education courses; they are the only categories of students to show an increase in their vocational course taking, counter to the decline for students with disabilities as a whole.

Students in other disability categories also have patterns of changes in their school programs that set them apart from their peers. For example, the rate of enrollment in life skills or study skills courses more than doubled among students with emotional disturbances, the only category of students, besides those with multiple disabilities or mental retardation, among whom an increase in life skills or study skills training occurred. Students with emotional disturbances also show the largest increase in receipt of mental health services, as might be expected. In contrast, students with learning disabilities or other health impairments are the only categories of youth to register no increase in receipt of any kind of related service.

Although gender differences in the ways school programs changed are limited, changes in course taking suggest positive trends. Differential rates of change among boys and girls with disabilities in taking some kinds of courses resulted in greater similarity in the course schedules of cohort 2 boys and girls than in the past, suggesting that gender stereotypes that may have influenced course choices have weakened.

In contrast, differential rates of change in some aspects of school programs among students with disabilities in different income and racial/ethnic groups suggest both potentially positive trends and cause for concern. For example, although enrollment in several kinds of academic courses increased among students with disabilities in all income groups, the increase in taking a foreign language was largest among those from households with the highest incomes, significantly widening the gap between income groups in the likelihood of their taking this college preparatory course. The greater emphasis on college preparation among youth with disabilities from higher-income households is also suggested by the fact that they are the only income group to show a significant decline in vocational education course taking. The highest income group also shows the largest decline in special education course taking overall. However, positive changes in school programs also are noted for students with disabilities from low-income households. They are the income group showing the only significant increases in

enrollment in general education academic classes overall and in general education mathematics, science, and social studies classes in particular.

Changes in school programs for students with disabilities of different racial/ethnic backgrounds also are apparent. For example, white students with disabilities show the most consistent pattern of increases in taking academic courses and in taking them in general education classrooms, and they are the only group to register a significant decline in taking academic courses in special education settings. As is true of youth with disabilities from higher-income households, white youth also are the only racial/ethnic group to show a significant decline in vocational course taking. In contrast, although African-American students with disabilities show increases in their rates of taking some kinds of academic courses, none of the increases in taking academic courses in general education classes that are noted among students with disabilities as a whole were shared by African-American students. African-American students with disabilities who were taking life skills courses also show the largest decline in the likelihood that they would be in general education classes and the largest increase in the likelihood that they would be in special education classes. Hispanic students with disabilities show the largest gain in enrollment in general education academic courses of any racial/ethnic group, although they show no changes in their rates of taking nonacademic courses or in the settings in which nonacademic courses were taken.

This chapter has described changes over time in key aspects of the secondary school programs of students with disabilities. These analyses raise the question of whether school reform initiatives have an impact on students' participation in school, the topic addressed in the next chapter.