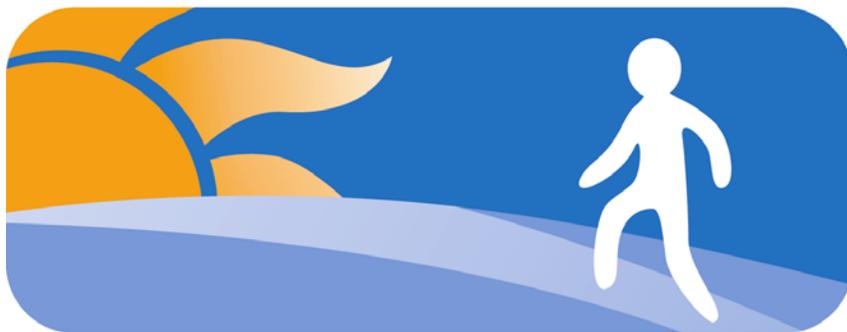


April 2003



NATIONAL LONGITUDINAL TRANSITION STUDY **2**

LIFE OUTSIDE THE CLASSROOM FOR YOUTH WITH DISABILITIES

A Report from the National Longitudinal Transition Study-2
(NLTS2)

Prepared for:

Office of Special Education Programs
U.S. Department of Education

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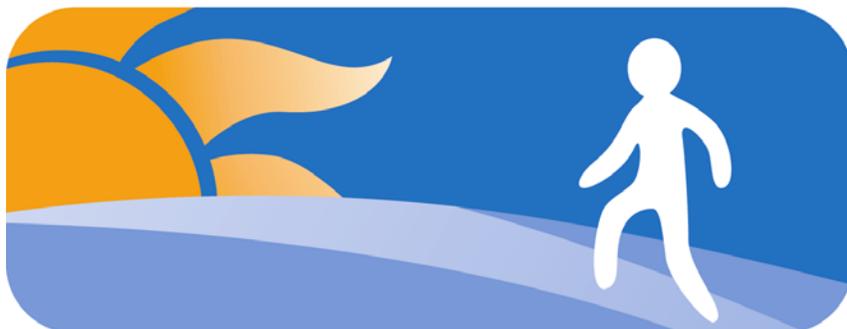


SRI International
333 Ravenswood Avenue Menlo Park, CA 94025



U.S. Office of Special
Education Programs

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Prepared for:

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Prepared by:

Mary Wagner, Tom W. Cadwallader, and Camille Marder, with Renée Cameto, Denise Cardoso, Nicolle Garza, Phyllis Levine, and Lynn Newman

SRI Project P11182

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EXECUTIVE SUMMARY

The choices youth make about how they spend their time outside of school can confer important benefits or result in serious negative consequences that may reverberate for a lifetime. In their nonschool hours, youth can choose activities that allow them to explore a wide range of interests, hone nonacademic skills, try out alternative modes of learning, develop interpersonal competencies, earn money, or become proficient in the increasingly complex activities of daily living. In contrast, youth can make choices that detract from their ability to perform at their best in school or that even cause harm to themselves or others. The directions youth take in their lives outside of school are important for all youth, but may be particularly critical for youth who have disabilities that present challenges to their academic learning, social engagement, or functional independence.

The National Longitudinal Transition Study-2 (NLTS2) provides the most in-depth look yet available on life in the nonschool hours for youth with disabilities nationally. This report from NLTS2 focuses on youth with disabilities who were ages 13 through 17 when information was first collected about them from parents in 2001, and addresses the following aspects of their nonschool experiences:

- Use of free time (Chapter 2)
- Interactions with friends (Chapter 3)
- Participation in extracurricular activities (Chapter 4)
- Employment (Chapter 5)
- Relationships between nonschool activities and the social skills of youth (Chapter 6).

Methods

The findings presented in this report come from telephone interviews with parents of students included in NLTS2. Parents who could not be reached by telephone were mailed a questionnaire with a subset of the items included in the telephone interview. Taken together, the interview and survey yielded information for 82% of youth with disabilities in the NLTS2 sample.

The statistics presented in the report are weighted estimates for the population of youth with disabilities nationally. They generalize to and are reported for that population as a group, as well as for each special education disability category. Findings also are reported for youth who differ in gender, age, household income, and race/ethnicity.

Use of Free Time

Parents of youth with disabilities were asked to report how youth spend “most of their time” when they are not in school or working. They report that youth with disabilities spend their time in many of the same ways as youth in the general population.

This is an executive summary of Wagner, M., Cadwallader, T. W., Newman, L., & Marder, C., with Levine, P., Garza, N., & Cardoso, D. (2003). *Life outside the classroom for youth with disabilities. A report from the National Longitudinal Transition Study-2 (NLTS2)*. Menlo Park, CA: SRI International.

- According to parents, watching television and videos fills much of the free time of adolescents with disabilities, just as it does for many youth of the same ages in the general population.
- Youth with disabilities also are about as likely as youth in the general population to spend their time involved in sports and physical activities, although fewer than half spend most of their time in these active pursuits.
- More than one-third of youth with disabilities are reported by parents to spend most of their time using a computer.
- Many youth with disabilities also spend a great deal of time in social interactions with their families and friends, both on the phone and face-to-face.

All nonschool activities investigated by NLTS2 are engaged in frequently by at least some youth in every disability and demographic category, and the rates of participation in these activities are quite similar across groups. However, some understandable differences among youth are noted.

- Some disabilities, such as orthopedic or sensory impairments, appear to encourage the choice of less-physical activities. In contrast, outdoor or physical activities are more common among youth with learning disabilities or speech or other health impairments.
- Some disabilities that can limit social interactions, such as autism, are related to lower levels of involvement with friends or others outside the family.
- Not all youth share equally in the potential benefits of computer use. Youth with cognitive or multiple disabilities are less likely than others to use computers, as are youth from lower-income households.
- Gender differences are apparent and continue to reflect traditional stereotypes. Boys more frequently choose sports, games, and physical activities, and girls appear to prefer less-active and more-intimate pursuits, such as spending time with family members and talking with friends on the phone.

Interactions with Friends

A large majority of youth with disabilities have informal interactions with individual friends apart from time in class and in organized group activities. Parents report that most youth meet with friends, receive telephone calls from friends, are invited to friends' social activities, and/or communicate with peers electronically. Only 2% of youth reportedly participate in none of these forms of interaction with friends.

However, large differences in social activities associated with primary disability categories demonstrate how functional limitations may have significant effects on social interactions.

- Youth with learning disabilities or speech/language, hearing, or other health impairments tend to be the most socially active.
- Youth with autism, multiple disabilities, and deaf-blindness have much less frequent contacts with friends, including a sizable percentage of each group who have none of the forms of social interaction investigated in NLTS2. Nevertheless, most are not wholly out

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of touch with their peers; the majority do visit with friends at least occasionally, and most are invited to other youth's social activities.

- There is a pattern of greater social interaction among older youth, consistent with research on the general population of students.
- Gender differences also are noted; boys favor frequent in-person visits with friends, whereas girls are more likely to use the telephone for that purpose.
- The social activities of youth with disabilities also vary with race/ethnicity and income; higher-income youth with disabilities tend to be more active and Hispanic youth less active in several of the activities measured by NLTS2.

Extracurricular Activities

More than three-fourths of youth with disabilities participate in extracurricular activities and programs through which they can explore interests, learn skills, develop friendships, and participate actively as members of their schools and communities. However, rates of participation are significantly lower than those of youth in the general population, mainly because of lower rates of participation of youth with disabilities in lessons and volunteer activities. Participation in school- or community-sponsored group activities is actually more common among youth with disabilities than among youth in the general population. Youth with disabilities who participate in extracurricular activities tend to be those who also have more frequent interactions with individual friends.

Participation in extracurricular activities is not equally common for youth across disability groups. Youth with such disabilities as mental retardation, multiple disabilities, or deaf-blindness are much less likely to participate in extracurricular activities, whereas youth with speech, hearing, or other health impairments are the most active overall.

Choice of activity and participation level among youth with disabilities are related to a variety of demographic factors that generally mirror those of youth in the general population.

- Boys and girls with disabilities engage in extracurricular activities in about the same proportions, although differences in their choices of the kinds of group to which they belong reflect traditional gender stereotypes.
- Financial barriers may hinder participation in some kinds of extracurricular activities; youth from lower-income households participate in extracurricular activities at a lower rate overall, as do minority youth.

Employment

Holding a job is an important marker for youth as they begin to take on adult roles and responsibilities and is a common experience for youth with disabilities.

- Almost 60% of youth with disabilities are employed during a 1-year period, an employment rate that is very similar to that of youth in the general population.
- Approximately 15% hold work-study jobs in a given school year.

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- During a 1-year period, more than half of youth with disabilities work at one or more jobs that are not associated with school, with more than 20% of youth working at a given time.

In many respects, the jobs held by youth with disabilities are typical of those held by teens in the general population.

- Approximately 60% of employed youth with disabilities hold maintenance, personal-care, or food service jobs.
- During the school year, more than half of youth work up to 8 hours per week; youth tend to work more hours during the summer.
- Half of youth with disabilities earn the minimum wage of \$5.15 or more.

Disability, age, gender, household income, and race/ethnicity all are associated with youth's employment rates and job characteristics.

- **Disability.** Youth with learning disabilities, emotional disturbances, or other health impairments are the most likely to work at regular jobs. In contrast, work-study jobs are a particularly common source of work for youth with mental retardation, autism, multiple disabilities, or deaf-blindness. The majority of working youth in all categories work up to 8 hours per week, although the percentage working at this level varies from about half of youth with emotional disturbances to more than two-thirds of youth with autism. Across disability categories, from 41% to 56% of working youth earn at least the minimum wage; youth with visual impairments are the least likely and those with other health impairments are the most likely to earn the minimum wage or more.
- **Age.** Older youth are more likely to work—fewer than half of 13- and 14-year-olds work in a 1-year period, whereas two-thirds of 17-year-olds do. With age, the percentages of youth working in informal types of maintenance and personal-care jobs (e.g., lawn mowing, babysitting) decrease, and employment in food service, trades, and clerical jobs increases. Few young teens work more than 16 hours per week, and fewer than 40% earn the minimum wage or more. However, at age 17, more than one-quarter of working youth with disabilities work more than 16 hours per week, and almost two-thirds earn at least the minimum wage.
- **Gender.** Boys and girls with disabilities are about equally likely to work, but some of their employment experiences are different. Girls are more likely than boys to work in personal-care jobs, including babysitting, whereas boys are more likely to work in maintenance jobs (many of which are lawn mowing or gardening). In addition, boys tend to earn more than girls; more than half of boys earn the minimum wage or more, compared with just over one-third of girls.
- **Household income.** Youth with disabilities from higher-income households are more likely to work than those from lower-income households. Higher-income youth also tend to earn more than those from lower-income households, even though they do not differ significantly in the kinds of job they hold or the number of hours they work.
- **Race/ethnicity.** Paralleling findings related to income, white youth are more likely to work than others, and they tend to earn more than African American youth. Differences in earnings exist despite similarities in both the kinds of job held and the hours worked by youth of different racial/ethnic backgrounds.

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Relationships Between Nonschool Activities and Social Skills

Not surprisingly, there is an association between the social skills and the nonschool activities of youth with disabilities. For most kinds of friendship interaction and extracurricular activity, including employment, a larger proportion of youth with high social skills are found among active youth, whereas a larger proportion of less socially skilled youth are found among those who are less active. However, this is not a defining relationship. Youth with low social skills still are found among those with very active friendships and among participants in all kinds of extracurricular activity. Limited social skills may challenge youth when interacting with friends and in extracurricular pursuits, but do not prevent them from engaging in these activities.

Life Outside of School—A Summary

- **Active youth.** In their nonschool hours, youth with disabilities are involved with activities at home, personal friendships, organized extracurricular activities, and jobs. However, with the exception of paid employment, rates of participation in these kinds of extracurricular activity fall somewhat short of those of the general student population, suggesting that the benefits associated with such activities accrue to youth with disabilities less than to their nondisabled peers.
- **Possible causes for concern.** A minority of youth appear not to be experiencing the positive supports and activities that are reported for most. For example, more than one in four students participate in no organized extracurricular activities, and 2% have no interactions with friends of the kinds explored in NLTS2. Autism and multiple disabilities, including deaf-blindness, are disabilities that appear to present significant obstacles to these kinds of interaction.
- **Widespread computer literacy.** Many teens with disabilities, like their nondisabled peers, appear to have acquired skills and familiarity with computer technology and use technology in a variety of ways. Their computer literacy could be an important foundation on which to develop career interests or employment opportunities in the future.
- **Disability isn't everything.** Although students with different kinds of disability differ in some of the activities that fill their nonschool hours, they are quite similar in others. For example, watching television and videos, participating in sports or other physical activities, and using a computer are the most common activities of youth in their free time, regardless of disability category, and large majorities of youth in all categories are involved with friends. However, there is much wider variation in the extent to which youth take part in groups and hold regular paid jobs, suggesting that individual relationships may be less affected by variations in disability than the more complex social interactions required to take part in extracurricular activities, including working.
- **Shifting uses of time with age.** Younger and older students are equally likely to spend their time in a variety of activities at home, but in their activities outside the house, there are some notable differences. Older youth are less likely than younger students to spend a significant amount of their time playing sports or engaging in other kinds of outdoor or physical activity. Instead, an increasing amount of their time is spent working. These

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differences among youth with disabilities are quite similar to those documented for youth in the general population, affirming the developmental importance of age in understanding variations in their experiences, regardless of disability.

- **Gender makes a difference.** Differences between adolescent boys and girls with disabilities emerge in areas in which personal preferences are exercised. For example, boys and girls with disabilities are equally likely to be involved in extracurricular activities, but they choose different kinds of activity. However, gender differences in the employment domain may be less reflective of personal preferences than of social norms. Boys and girls are about equally likely to work, but girls are more likely than boys to engage in informal jobs, such as babysitting—jobs that may not build the same kinds of skill or employment “track record” as the regular jobs for licensed employers that are more common among boys. These differences in the kinds of early work experiences of girls and boys may contribute to the pattern of substantially lower earnings among girls with disabilities than among their male peers.
- **Money matters.** Youth from lower-income households have experiences in their nonschool hours that are distinctly different from those of youth in wealthier households. Friendship interactions of many kinds are less common among youth from lower-income households, who also are less likely to participate in extracurricular activities of every kind. Employment, too, is less likely to fill the nonschool hours of youth from poorer households, and when they work, they tend to earn less.
- **Cultural influences.** Differences between racial/ethnic groups are apparent with regard to some aspects of nonschool experiences. For example, white youth are the most active participants in organized extracurricular activities overall and in volunteer or community service activities in particular. Employment also is significantly more common for white youth than for African American or Hispanic youth, and when white youth work, they tend to earn more. Hispanic youth generally are less involved with individual friendships than other youth are.

Looking Ahead

These findings from NLTS2 provide the most comprehensive look yet at the activities of youth with disabilities in their nonschool hours. The important question remains, however: what difference does having these nonschool experiences make in helping youth succeed in school and in the transition to adult life? Future NLTS2 analyses will address this question in depth. The longitudinal nature of NLTS2 also gives a solid base of information for examining such important issues as the development of the labor market experiences of youth with disabilities as they age and transition out of high school into early adulthood.

1. YOUTH WITH DISABILITIES: MORE THAN STUDENTS

By Mary Wagner

Although school is a critically important learning environment for school-age children and youth, in reality they spend only 20% of their waking hours there (Coltin, 1999). The majority of their time is spent at home with family members, interacting with peers, taking part in extracurricular activities, pursuing individual interests, or engaging in community or recreational activities. All of these activities can provide invaluable opportunities for *experiential learning*—“education that occurs from direct participation in the events of life” (Houle, 1980, p. 221).

The choices students make about how they spend their time outside of school can reap important benefits or result in serious negative consequences that may reverberate for a lifetime. On the positive side, in their nonschool hours, youth can choose activities that allow them to explore a wide range of interests, hone nonacademic skills, try out alternative modes of learning, earn money, or become proficient in increasingly complex activities of daily living. Perhaps most importantly, in their nonschool hours, many youth find multiple arenas in which to develop interpersonal relationships and competencies with youth and adults outside of their families, relationships that gain in importance in adolescence and are, for many, a key factor in perceptions of the quality of life (Myers & Diener, 1995).

In contrast, youth can make choices about activities and relationships that detract from their ability to perform at their best in school or that even cause harm to themselves or others. As peers take on an increasingly powerful role in adolescence, the values they share can spur youth on to positive accomplishments or to unhealthy or antisocial activities in their nonschool hours. It is sobering to note that the rate of violent juvenile crimes reportedly triples between the hours of 3:00 and 6:00 p.m., relative to earlier in the day when students are in school and supervised (Sickmund, Snyder, & Poe-Yamagata, 1997; Fox & Newman, 1998).

Opportunities for positive experiences in their nonschool hours are important for all youth, but they may be particularly critical for youth whose disabilities present challenges to their academic learning, social engagement, or functional independence. Yet, little recent information has been available on the lives of youth with disabilities in their nonschool hours.¹ This report addresses that gap in knowledge about youth with disabilities in the 21st century by addressing the following questions:

- How do youth with disabilities spend their free time—time not devoted to school or work? A broad look at the use of free time of youth with disabilities, as reported by parents, provides a general context within which to take a more in-depth look at specific experiences of youth outside of school.
- What social experiences do youth have? Friendships can enrich lives in valuable ways, and relationships with peers can contribute importantly to the social development of children and youth. Through interactions with friends, youth can learn much about themselves, as well as about negotiating skills and an appreciation of personal differences

¹ The original National Longitudinal Transition Study (NLTS) investigated some aspects of students' activities in their nonschool hours, using data collected in 1987 and 1990.

and wider perspectives. They also can engage in activities they cannot do alone, and enjoy the pleasures of shared interests.

- What organized extracurricular activities do youth with disabilities engage in at school and in the community? Taking part in organized activities can have a wide range of benefits for youth, including improved academic performance, avoidance of risk behaviors, skill development beyond the classroom, and expanded social skills.
- What are the early work experiences of youth with disabilities? As teens age, their developmental task is to gain experience with roles they will take on in adulthood. Working during adolescence, whether through a work-study program, in informal jobs such as babysitting, or in regular paid employment, can be an important introduction to the labor force and can provide a variety of experiences and opportunities to learn new skills, including the art of balancing the demands of work and school.
- How does participation in friendships, extracurricular activities, and employment relate to the level of social skills youth possess, as reported by their parents? Examining the relationships between social competencies and engagement in activities and relationships with others can aid our understanding of the choices and limits youth with disabilities have regarding the use of their nonschool hours.

These questions about the nonschool experiences of youth with disabilities are addressed with data from the National Longitudinal Transition Study-2 (NLTS2).² NLTS2 is one component of a portfolio of longitudinal studies that span the age range of children and youth with disabilities. These studies are sponsored by the Office of Special Education Programs (OSEP) of the U.S. Department of Education in response to requirements of the Individuals with Disabilities Education Act (IDEA) Amendments of 1997. The legislation authorizes the “production of new knowledge” [Sec. 672(b)(1)] through a variety of federal activities, including “producing information on the long-term impact of early intervention and education on results for individuals with disabilities through large-scale longitudinal studies” [Sec. 672(b)(2)(H)].

NLTS2 is a rich source of information on the characteristics, experiences, and achievements of youth with disabilities who were ages 13 through 16 in 2000. Information will be collected about these youth five times from parents, school staff, and the youth themselves, as they transition from secondary school to early adulthood. This document is one in a series of reports from NLTS2 that will emerge over the next several years. It presents information from parents and guardians³ of NLTS2 students gathered through telephone interviews and a mail survey conducted in 2001.

Chapters 2 through 5 of this report address the dimensions of adolescent experiences outlined above: use of free time, friendship interactions, participation in extracurricular activities, and employment. Chapter 6 briefly discusses the relationships between the friendship and extracurricular experiences of youth and their social skills. The final chapter identifies key points about youth’s nonschool hours and how those experiences vary for different groups of youth. Details of the methods used are included in Appendix A. Appendix B briefly describes key characteristics of the youth with disabilities who are represented in NLTS2 and of their households. This context is important for interpreting information about them and making

² Additional information about NLTS2 is available at www.NLTS2.org.

³ For simplicity, parents and guardians are referred to as parents in this report.

comparisons with the general youth population. The final appendix provides unweighted sample sizes for the analyses reported in the data tables.

Findings reported in these chapters are presented in several ways. First, the means of continuous variables (e.g., the average hourly wage of working youth) or the overall frequency distributions of categorical variables (i.e., the weighted percentages of youth with disabilities who had different kinds of jobs) are presented. Then the distribution of each variable for important subgroups of youth is described, including those who differ in their primary disability category and selected demographic characteristics.

Readers should remember the following issues when interpreting the findings:

- **Results are weighted.** All of the descriptive statistics presented in this report are weighted estimates of the national population of students receiving special education in the NLTS2 age group, as well as each disability category individually.
- **Standard errors.** A standard error is presented for each mean and percentage in this report (usually presented in parentheses), which indicates the precision of the estimate. For example, a variable with a weighted estimated value of 50% and a standard error of 2 means that the value for the total population, if it had been measured, would, with 95% confidence, lie between 48% and 52% (plus or minus 2 percentage points of 50%). Thus, small standard errors allow for greater confidence to be placed in the estimate, whereas larger ones require caution.
- **Small samples.** Although NLTS2 data are weighted to represent the population, the size of standard errors is influenced heavily by the actual number of youth in a given group (e.g., a disability category or racial/ethnic group; those group sizes are reported in Appendix C). Findings are not reported for groups with fewer than 35 members. For groups that are reported, those with very small samples will have comparatively large standard errors. For example, there are relatively few youth with deaf-blindness, so estimates for that group have relatively large standard errors. Therefore, the reader should be cautious in interpreting results for this group and others with small sample sizes.
- **Significant differences.** Only differences between groups that reach a level of statistical significance of at least .05 are mentioned in the text; significance levels generally are noted in the text. A method for using standard errors to calculate the significance of differences between groups of interest is outlined in Appendix A.

The following chapters provide the first national picture of the nonschool experiences of adolescents with disabilities. These data will be augmented in the next few years of NLTS2 with additional reports on the schools they attend, the courses they take, their classroom experiences, and their academic performance. In later years, as youth transition to early adulthood, NLTS2 reports will focus on their experiences with postsecondary education, employment, and independent living.

2. THE USES OF FREE TIME BY YOUTH WITH DISABILITIES

By Tom W. Cadwallader and Mary Wagner

The adolescent years traditionally are associated with increased independence from parental supervision. Teens increasingly make their own decisions about how they spend their time away from work and school. When at home, they may spend time fulfilling household and school responsibilities by doing chores or homework, or they may choose to read, watch television, play computer games, or talk on the phone. As teens age, they typically spend more time away from home, particularly if they learn to drive and have access to a car. Outside the house, youth may engage in extracurricular group activities at school or in the community or “hang out” with friends.

The choices youth make regarding the use of their free time can have important impacts on other aspects of their lives. Spending time doing homework is an important foundation for academic achievement. Extracurricular activities, such as sports teams or special-interest clubs, can help youth hone skills and explore interests that could shape future educational and career choices. Spending time with friends can have positive or negative consequences for youth, depending on the values shared by friends and the activities they choose to pursue together.

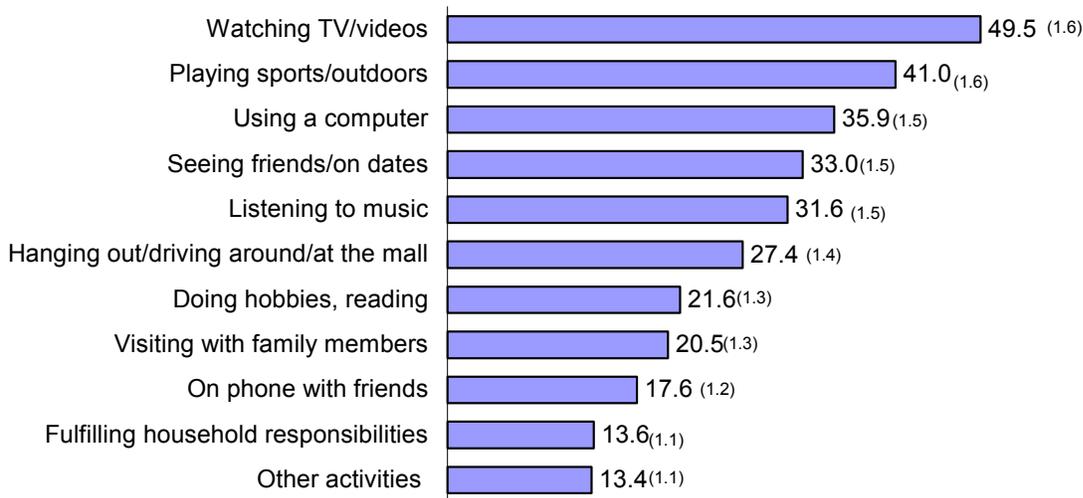
This chapter explores parents’ reports of how youth with disabilities spend their free time. Parents were asked “During the past few weeks, how has (youth) spent most of (his/her) time when (he/she) wasn’t working or going to school?” Parents responded in their own words with one or more activities that they perceive occupied “most” of youths’ free time.¹ The kinds of activities in which youth with disabilities reportedly participate are identified, as well as variations in participation for those who differ in their primary disability category, age, gender, household income, and race/ethnicity.

Uses of Free Time

Youth with disabilities are reported by parents to participate in a variety of activities in their free time that are fairly typical of teens (Exhibit 2-1). Television and video watching is the activity most commonly reported by parents; almost half of youth are reported to spend most of their free time in this activity. Whereas about 25% of youth with disabilities are relatively infrequent TV and video watchers, spending 6 hours or fewer per week watching them (Exhibit 2-2), a similar number spend more than 20 hours a week in front of the television set. Parents report that youth with disabilities spend an average of almost 16 hours per week watching TV and videos, compared with about 20 hours per week for youth in the general population (Roberts, Foehr, Rideout, & Brodie, 1999).

¹ Note that the question addresses the ways youth spend “most” of their time, and parents could name more than one activity. If parents named more than one activity, each is counted here as an activity in which youth spend most of their time. For example, if a parent said that a youth spends most of his or her time hanging around the mall and watching television, each of these activities is counted as how that youth spends most of his or her time. It is unknown how well informed parents were of the ways in which youth spend their free time.

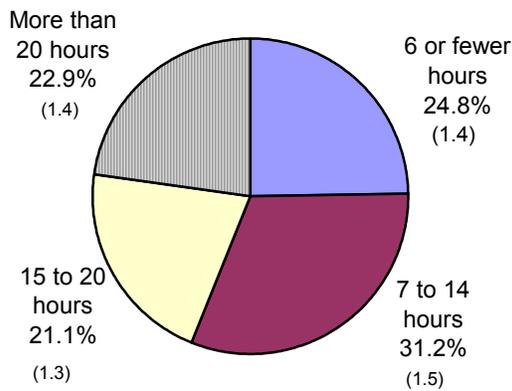
**Exhibit 2-1
USES OF FREE TIME OF YOUTH WITH DISABILITIES**



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Percentage reported to spend "most of his/her time" in activity

**Exhibit 2-2
HOURS SPENT WATCHING
TELEVISION AND VIDEOS BY
YOUTH WITH DISABILITIES**



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

More than 40% of youth with disabilities are said to spend most of their time outdoors, playing sports, or engaged in physical activities (Exhibit 2-1 above). This is quite similar to the 46% of youth in the general population in grades 7 through 12 who are reported to play an active sport five or more times per week (Udry, 1998).

Parents identify listening to music, spending time with friends and on dates, and using the computer (i.e., "surfing the Web," corresponding by e-mail, or playing electronic games) as other frequent pursuits for about one-third of youth with disabilities.

About 27% of the youth with disabilities spend their time at the mall, hanging out, or driving around. About one in five youth are said to spend most of their free time with family members, on the phone, or doing hobbies or reading. Parents say 14% of youth

spend most of their time doing homework, housework, pet care, or meeting other responsibilities.

Disability Differences in the Uses of Free Time

Both similarities and differences appear between disability categories in parents' reports of their adolescent children's use of their free time (Exhibit 2-3). Watching television or videos is the most commonly reported activity for all categories of youth, including those with sensory impairments that might make either the audio or video aspects of this activity challenging; between 47% and 62% of youth are reported to spend most of their time in this way. Spending time outdoors or playing sports is the second most frequently reported activity for most youth. Exceptions are youth with hearing or orthopedic impairments, or autism, for whom computer-related activities are the second most common activity, and those with visual impairments or deaf-blindness, 48% and 35% of whom reportedly spend most of their time doing hobbies or reading.

The least common activities for most youth involves fulfilling school or household obligations, such as doing homework or chores. In contrast to this general pattern, youth with hearing impairments, autism, multiple disabilities, or deaf-blindness are the least likely to be reported to spend a lot of time on the phone with friends.

Spending time in unstructured activities outside the house (i.e., at the mall, hanging out, or driving around) is reported as a frequent activity for between 20% and 32% of youth, with those with emotional disorders, traumatic brain injuries, and other health impairments having the highest reported rates of these activities. Using computers is a frequent activity for more than a third of youth in most categories; exceptions are youth with mental retardation (26%) or multiple disabilities (27%).

**Exhibit 2-3
USE OF FREE TIME, BY DISABILITY CATEGORY**

	Learning Disability	Speech/Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage reported to spend most of their time:												
Watching TV/videos	47.3 (2.5)	50.9 (2.5)	56.5 (2.5)	50.0 (2.6)	52.3 (2.9)	52.0 (3.5)	61.7 (2.7)	48.7 (2.4)	60.2 (2.7)	57.0 (4.5)	58.5 (2.7)	58.3 (5.3)
Outdoors/playing sports	42.9 (2.4)	41.5 (2.5)	40.0 (2.5)	38.9 (2.6)	41.6 (2.9)	30.9 (3.3)	27.0 (2.5)	43.9 (2.4)	33.2 (2.0)	34.9 (4.3)	35.8 (2.6)	30.2 (4.9)
On the computer	37.0 (2.4)	39.2 (2.4)	26.3 (2.3)	34.7 (2.5)	43.1 (2.9)	35.0 (3.4)	47.4 (2.8)	43.8 (2.4)	46.2 (2.7)	35.0 (4.3)	26.6 (2.4)	30.9 (4.9)
With friends/on dates	35.0 (2.4)	34.2 (2.4)	27.3 (2.3)	31.8 (2.4)	32.2 (2.7)	23.9 (3.0)	20.8 (2.3)	38.0 (2.3)	8.9 (1.6)	23.6 (3.8)	17.4 (2.1)	15.4 (3.9)
Listening to music	31.9 (2.3)	32.3 (2.3)	33.3 (2.4)	28.8 (2.4)	23.3 (2.5)	39.3 (3.7)	37.5 (2.7)	27.9 (2.2)	33.3 (2.6)	32.5 (4.2)	35.5 (2.6)	29.2 (4.9)
Hanging out/driving around/at the mall	27.3 (2.2)	24.3 (2.1)	27.7 (2.3)	28.2 (2.4)	26.1 (2.6)	25.8 (3.1)	19.8 (2.2)	31.6 (2.2)	23.7 (2.3)	29.2 (4.1)	25.8 (2.4)	24.0 (4.6)
On hobbies, reading	21.2 (2.0)	26.3 (2.2)	21.0 (2.1)	20.1 (2.1)	24.4 (2.5)	47.7 (3.1)	29.9 (2.6)	21.5 (2.0)	35.7 (2.6)	25.9 (4.0)	25.9 (2.4)	35.3 (5.1)
With family members	20.3 (2.0)	19.4 (2.0)	25.6 (2.2)	16.3 (1.9)	18.1 (2.2)	21.4 (2.9)	22.7 (2.3)	18.7 (1.9)	20.3 (2.2)	24.9 (3.9)	25.4 (2.4)	24.2 (4.6)
On the phone	19.3 (2.0)	16.7 (1.9)	14.9 (1.8)	16.2 (1.9)	13.4 (2.0)	18.3 (2.7)	14.7 (2.0)	14.5 (1.7)	1.9 (.7)	14.2 (3.2)	7.8 (1.5)	8.3 (2.9)
Fulfilling responsibilities	13.6 (1.7)	15.5 (1.8)	14.9 (1.8)	11.2 (1.7)	15.4 (2.1)	13.7 (2.4)	13.2 (1.5)	14.5 (1.7)	7.8 (1.5)	9.1 (3.6)	11.7 (1.8)	13.6 (3.7)
On other activities	13.2 (1.7)	15.8 (1.8)	13.4 (1.7)	13.2 (1.8)	13.9 (2.0)	12.8 (2.4)	17.1 (2.1)	13.1 (1.6)	12.2 (1.8)	12.2 (3.0)	15.0 (2.0)	16.0 (3.9)

Source: NLS2 Wave 1 parent interviews.
Standard errors are in parentheses.

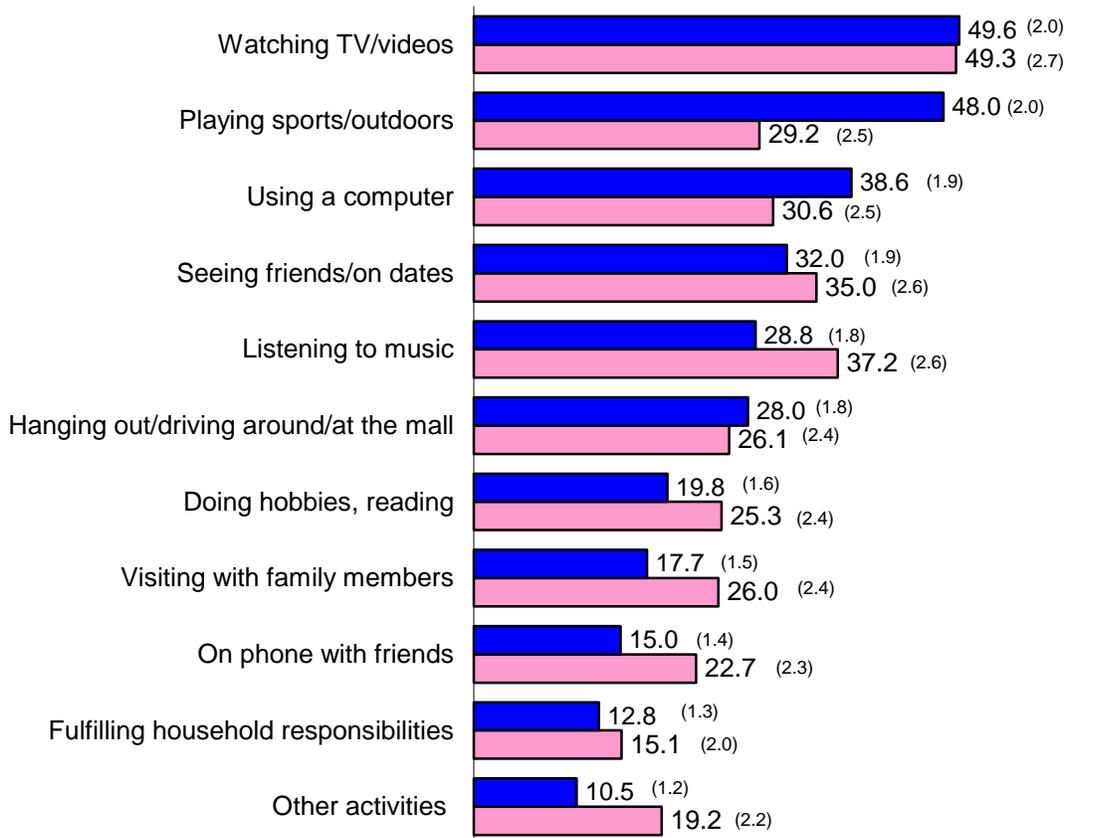
Demographic Differences in the Uses of Free Time

Differences in the use of free time between youth who differ in several important respects other than disability also are evident.

Age. Although there are few marked differences in the use of free time between youth across the 13 through 17 age range, one such difference involves time spent playing sports or in other outdoor or physical activities. The percentage of youth who spend most of their time this way is 46% among 13- and 14-year-olds and 32% among 17-year-olds ($p < .01$).

Gender. The time uses of boys and girls are quite similar in many ways (Exhibit 2-4). They share the propensity to spend most of their time watching television or videos, and they are about equally likely to spend most of their time hanging out, at the mall, or driving around; with friends or on dates; or fulfilling responsibilities. However, boys and girls differ in other ways in the use of their free time. For example, girls are significantly more likely than boys to spend time with family members and on the phone with friends ($p < .01$ for both comparisons). They also are more likely than boys to spend time listening to music ($p < .01$). In contrast, boys are more likely than

Exhibit 2-4
USES OF FREE TIME, BY GENDER



Percentage reported to spend "most of his/her time" in activity

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

■ Boys
■ Girls

girls to spend time playing sports or in other physical or outdoor activities ($p < .001$), and more boys than girls spend most of their time using the computer for electronic games, communication, or other purposes ($p < .05$).

Household Income. Youth who differ in household income are more alike than different in the use of their free time (Exhibit 2-5). There are no differences in such activities as watching television or videos, doing hobbies or reading, spending time with family members or on the phone with friends, or fulfilling responsibilities. However, there is a marked difference in the use of a computer for electronic games, e-mail, or other activities, favoring higher-income youth. About 47% of youth from households with annual incomes greater than \$50,000 are said to spend most of their time using a computer, compared with 26% of youth from households with incomes of \$25,000 or less ($p < .001$). However, youth from higher-income homes also are more likely than lower-income youth to spend significant amounts of time hanging out, at the mall, or driving around (30% vs. 22%, $p < .05$).

Exhibit 2-5
USES OF FREE TIME, BY HOUSEHOLD INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	\$25,000 or Less	\$25,001 to \$50,000	More than \$50,000	White	African American	Hispanic
Percentage who spent most of their time:						
Watching TV/videos	51.5 (2.6)	47.3 (3.0)	51.0 (3.0)	46.9 (2.1)	55.9 (3.4)	50.6 (4.5)
Outdoors/playing sports	37.5 (2.6)	45.8 (3.0)	42.3 (3.0)	44.5 (2.1)	37.2 (3.4)	36.5 (4.3)
On the computer	25.7 (2.3)	37.1 (2.9)	47.1 (3.0)	38.5 (2.0)	32.6 (3.3)	27.5 (4.0)
With friends/on dates	28.9 (2.4)	35.6 (2.9)	35.1 (2.9)	35.4 (2.0)	29.0 (3.2)	24.3 (3.9)
Listening to music	33.9 (2.5)	31.5 (2.8)	29.1 (2.7)	28.5 (1.9)	37.0 (3.4)	36.6 (4.3)
Hanging out/driving around/at the mall	22.4 (2.2)	32.3 (2.8)	30.1 (2.8)	31.5 (1.9)	19.8 (2.8)	17.7 (3.4)
On hobbies, reading	21.7 (2.2)	18.2 (2.3)	23.4 (2.6)	19.9 (1.7)	23.6 (2.9)	25.8 (3.9)
With family members	19.9 (2.1)	20.6 (2.5)	21.3 (2.5)	19.8 (1.7)	19.9 (2.8)	23.2 (3.8)
On the phone	16.4 (2.0)	19.8 (2.4)	17.5 (2.3)	16.6 (1.5)	21.2 (2.8)	18.0 (3.5)
Fulfilling responsibilities	12.8 (1.8)	12.7 (2.0)	16.3 (2.2)	14.0 (1.4)	13.8 (2.4)	11.0 (2.6)
On other activities	12.4 (1.7)	13.8 (2.1)	14.8 (2.1)	13.1 (1.4)	16.6 (2.6)	9.5 (2.6)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Race/Ethnicity. White youth are less likely than African American youth to spend most of their time watching television or videos or listening to music (47% vs. 56% and 28% vs. 37%, $p < .05$). In contrast, they are more likely than both African American or Hispanic youth to hang out, drive around, or go to the mall (32% vs. 20% for African American and 18% for Hispanic youth, $p < .001$).

Summary

According to parents, watching television and videos provides much of the free-time entertainment for adolescents with disabilities, just as they do for other youth of the same ages. Youth with disabilities also are about as likely to spend their time involved in sports and physical activities as youth in the general population, although fewer than half spend most of their time in these active pursuits. These findings could engender an ambivalent response. It is reassuring to know that youth with disabilities spend their time in many of the same ways as youth in the general population. However, their similarity in choosing television or video watching over more active pursuits means that the growing concerns regarding the link of television watching and other sedentary behaviors with adolescent obesity (American Academy of Pediatrics, 2001; Crespo et al., 2001) and, perhaps, with a propensity to injury and violence (Willis & Strasberger, 1998; Donnerstein & Linz, 1995) apply equally to youth with disabilities and to youth in the general population.

More than one-third of youth with disabilities are reported by parents to spend most of their time using a computer. This reported computer use by many youth with disabilities could bode well for their future educational and employment outcomes in a world increasingly dependent on technology and information. However, not all youth share equally in the potential benefits of computer use. Youth with mental retardation or multiple disabilities are less likely than others to use computers, as are youth from lower-income households.

Many youth with disabilities also spend a great deal of time in social interactions with their families and friends, both on the phone and face-to-face. Given the importance of relationships to quality of life (Myers & Diener, 1995), their active social lives suggest that many are experiencing the benefits of relationships. However, some disabilities that can limit social interactions, such as autism, are associated with lower levels of involvement with friends.

All activities reported here are frequent activities for at least some youth in every disability and demographic category, and the rates of participation for many uses of free time are quite similar across groups. However, some understandable differences are noted. For example, some disabilities, such as orthopedic or sensory impairments, appear to influence the choice of less physical activities, such as computer use. In contrast, outdoor or physical activities are more common among youth with learning disabilities or speech or other health impairments.

Gender differences are apparent and continue to reflect old stereotypes, with boys preferring sports, games, and physical activities and girls appearing to prefer less active and more intimate pursuits, such as spending time with family members and talking with friends on the phone. Income and racial/ethnic differences play only a small role in distinguishing uses of free time.

The following two chapters focus on two aspects of the use of free time by youth with disabilities reported here—friendship interactions and involvement in extracurricular activities.

3. INTERACTIONS WITH FRIENDS

By Tom W. Cadwallader and Mary Wagner

The social activities of youth outside of the classroom are crucial to their development. For many years, theory and research (e.g., Bronfenbrenner, 1979) have supported the important role of social interactions with peers, friends, parents, siblings, relatives, and others in the dynamic process of social adaptation and change. Friendships take on particular importance during adolescence, when teens detach themselves in some ways from their families (Raffaelli & Duckett, 1989) and use peers for some types of support that previously were provided by family members (Zetlin & Murtaugh, 1988). The degree of success in forming positive peer relationships can have important implications for youth's broader social adjustment (Asher & Coie, 1990; Bukowski, Newcomb, & Hartup, 1996; Parker & Asher, 1987).

Several dimensions come into play in understanding the role of friendships in the lives of youth, including the number of friends, their age and gender, and the quality and stability of the relationships. Friendships can be fluid and short-lived in early adolescence (Neckerman, 1992). As children enter their teen years, their feelings, beliefs, expectations, and attitudes can change, and friendships can grow and change accordingly. Throughout this process, youth appear to benefit from the opportunity to experience a variety of relationships, and having multiple contexts for social interaction is a central feature of positive social development.

Although having friends may be crucial to healthy development, some kinds of disabilities can be challenges to making and interacting with friends. For example, a hearing impairment can limit interactions with those who cannot use or understand manual communication. A visual impairment could limit the kinds of activities youth can engage in with friends. Autism and some kinds of behavioral disabilities can restrict or in other ways challenge social interaction with peers.

To understand the friendships of youth with disabilities¹, parents were asked to report how often youth interact with friends by getting together outside of school,² receiving telephone calls from them,³ and being invited to other youth's social activities.⁴ Parents also were asked whether youth use the Internet to communicate with others through chat rooms or e-mail.⁵ Although parents' responses indicate whether particular interactions with friends occur and, in

¹ Analyses similar to those reported in this chapter also have been conducted for elementary and middle school students with disabilities as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Cadwallader & Wagner (2002a).

² Parents were asked, "During the past 12 months, about how many days a week did (youth) usually get together with friends, outside of school and organized activities or groups?"

³ Parents were asked, "During the past 12 months, how often have his/her friends called on the phone? Would you say never; less than once a month; a few times a month, but not every week; about once a week; or several days a week?"

⁴ Parents were asked, "During the past 12 months, has he/she been invited by other students to social activities, like over to their home or to a party?"

⁵ Parents who reported they have a computer at home were asked, "How frequently does (youth) interact with others by using e-mail or taking part in chat rooms? Would you say several times a day, about once a day, several times a week, once a week, or less often?"

many cases, how frequently, they indicate nothing about the quality of the friendships involved. It also is important to note that some parents may not have an accurate picture of the frequency with which their adolescent children interact with their friends.

Types of Interaction with Friends

Most youth with disabilities have regular contact with friends¹ in a variety of ways (Exhibit 3-1). Approximately two-thirds of youth visit with friends outside of school at least once a week, and almost as many have received invitations from other youth to social activities during the past year. About three-quarters receive calls from friends occasionally (once a month or more, but not every week) or frequently (several times a week). The worldwide growth in computer use is reflected in the households of youth with disabilities, 70% of whom are reported to have a computer at home. More than two-thirds of youth (71%) who have a home computer use e-mail or visit World Wide Web chat rooms at least occasionally, according to their parents.

Exhibit 3-1
YOUTH'S INTERACTIONS WITH FRIENDS

	Percentage	Standard Error
Visit with friends:		
Never	9.4	0.9
Occasionally (less than once a week)	24.8	1.4
Regularly (one to three times a week)	35.2	1.5
Frequently (four or more times a week)	30.5	1.5
Receive telephone calls from friends:		
Rarely (less than once a month) or never	24.6	1.4
Occasionally (one or more times a month, but not every week)	10.2	1.0
Frequently (several times a week)	65.1	1.5
Have been invited to other youth's social activities during the past year	85.2	1.1
Use e-mail or chat rooms:		
Once a day or more often	15.8	1.3
At least once a week	24.0	1.5
Less than once a week	31.5	1.6
Never	28.7	1.6
Participate in none of these interactions with friends	2.5	.5

Source: NLTS2 Wave 1 parent interviews.

The number of times per week that youth with disabilities get together with friends is comparable to the number for adolescents in the general population. According to the National Longitudinal Study of Adolescent Health (Udry, 1998), about 93% of adolescents report that they “hang out” with friends at least once a week.

Despite high levels of interaction on average, some youth with disabilities are on the margins of their peer networks. Almost 10% of youth never visit with friends outside of school, and 15% have not been invited to others' social activities during the past year. About one-quarter of youth rarely or never receive telephone calls from friends. Nearly 3% of youth are reported not to have any of these forms of interaction with individual friends—they never visit with friends outside of school, never receive phone calls from friends, are not invited by friends to social activities, and do not use e-mail or chat rooms to communicate. However, it is important

to note that, although these are common forms of interaction with individual friends, they are not an exhaustive set of potential friendship interactions, and youth who do not participate in these activities may have other opportunities for interaction with peers in class or in extracurricular activities (see Chapter 4).

¹ Friends may include youth both with and without disabilities.

It is reasonable to assume that youth with active individual friendships interact in multiple ways: they both talk on the phone and get together outside of class, for example. Analyses provide support for this assumption. The Pearson correlation coefficients between the forms of interaction examined here all are positive, indicating that they vary together. Visiting with friends is highly correlated with both receiving calls from friends and being invited to social activities ($r=.49$ and $.44$, $p<.001$), as are receiving calls from friends and being invited to social activities ($r=.48$, $p<.001$). The correlations for these measures with use of e-mail and chat room are statistically significant but moderate in size, ranging from $.20$ to $.29$ ($p<.001$ for all relationships).

Disability Differences in Interactions with Friends

Differences in the kinds and levels of interaction with friends are apparent for youth who differ in their primary disability category (Exhibit 3-2). For example, the proportion of youth who see friends outside of class frequently ranges from 6% to 34% ($p<.001$). Receiving telephone calls frequently varies from 10% to 71% of youth with different kinds of disabilities ($p<.001$). The proportion of youth who engage in none of the friendship interactions investigated ranges from fewer than 1% to more than one-fourth of youth in different disability categories ($p<.001$).

Overall, youth with learning disabilities or speech/language impairments are the most active socially in the ways discussed here. They are among the categories with the highest rates of frequent participation, and few youth in these categories are said to participate in none of these friendship activities. Relatively large proportions of youth with emotional disturbances and other health impairments also have active friendships. Youth with hearing and other health impairments are particularly likely to be invited to others' social activities and to interact with others by computer, and most participate in one or more of the interactions examined here.

In contrast, youth with autism and multiple disabilities, including deaf-blindness, have the least active friendships. Almost one-third of youth with multiple disabilities, 44% of those with autism, and one-fourth of youth with deaf-blindness reportedly never interact with friends outside of class. More than 80% of youth with autism rarely or never receive telephone calls, as is the case with more than 60% of youth with multiple disabilities or deaf-blindness. Youth with mental retardation or orthopedic impairments also have less active friendships than many other categories of youth. Nonetheless, most youth in each of these categories still have interactions with friends. For example, almost half of youth with autism had been invited by other youth to social events during the past year, as have 56% of those with multiple disabilities and almost two-thirds of youth with deaf-blindness. Twenty-eight percent of youth with autism, 15% of youth with deaf-blindness, and 18% of youth with multiple disabilities participate in none of the forms of friendship interaction addressed here.

Exhibit 3-2
INTERACTIONS WITH FRIENDS, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage who:												
Visit with friends ^a												
Never	6.9 (1.3)	8.8 (1.4)	16.4 (1.9)	10.7 (1.6)	8.4 (1.6)	14.6 (2.5)	20.0 (2.2)	5.8 (1.1)	44.3 (2.7)	7.8 (2.4)	30.0 (2.5)	26.7 (4.7)
Frequently	33.2 (2.2)	26.8 (2.2)	22.4 (2.1)	34.1 (2.4)	22.0 (2.4)	18.1 (2.8)	14.3 (2.1)	28.5 (2.1)	5.8 (1.5)	24.1 (4.4)	14.1 (2.0)	11.9 (3.5)
Receive telephone calls from friends: ^b												
Rarely or never	18.8 (1.9)	22.0 (2.1)	41.5 (2.5)	25.5 (2.3)	41.3 (2.9)	33.0 (3.3)	46.6 (2.8)	23.3 (2.0)	83.5 (2.0)	34.0 (4.3)	62.7 (2.7)	64.4 (5.1)
Frequently	71.4 (2.2)	65.8 (2.4)	47.1 (2.6)	64.3 (2.5)	49.2 (2.9)	56.6 (3.5)	42.8 (2.8)	65.6 (2.3)	9.8 (1.6)	50.6 (4.5)	26.7 (2.4)	29.3 (4.8)
Have been invited to other youth's social activities during the past year	88.7 (1.5)	89.1 (1.5)	75.2 (2.2)	82.9 (1.9)	88.1 (1.9)	78.1 (2.8)	70.3 (2.5)	88.2 (1.5)	49.4 (2.7)	80.4 (3.7)	56.5 (2.7)	65.4 (4.8)
Use e-mail or chat rooms at least weekly	42.7 (2.6)	46.7 (2.6)	21.1 (2.3)	39.4 (2.7)	56.3 (3.1)	38.1 (3.6)	41.1 (2.9)	46.6 (2.5)	15.1 (2.0)	46.0 (4.8)	21.3 (2.3)	33.6 (5.1)
Participate in none of these interactions with friends	.8 (.4)	2.0 (.7)	6.7 (1.3)	3.3 (.9)	2.1 (.8)	4.2 (1.4)	6.6 (1.4)	.9 (.4)	28.5 (2.4)	2.9 (1.5)	18.1 (2.2)	14.7 (3.6)

Source: NLTS2 Wave 1 parent interviews.

^a The category "occasionally" (fewer than four times a week) is omitted from the table.

^b The category "occasionally" (one or more times a month but not every week) is omitted from the table.

Standard errors are in parentheses.

Demographic Differences in Interactions with Friends

Disabilities are not the only factors that differentiate the kinds and levels of friendships experienced by youth.

Age. Older and younger teens differ in their friendship interactions on only some dimensions (Exhibit 3-3). There are no significant differences between age groups in the frequency with which they are reported to spend time with friends outside of class. Similarly, no significant differences by age group are noted in the rates with which youth with disabilities do not participate in any of these social interactions. This similarity in the frequency of these activities is true not only among 13- through 17-year-olds, but also between teens and younger students with disabilities (Cadwallader & Wagner, 2002a). However, computer use for communication is more common among older youth (47% of 17-year-olds vs. 32% of 13- and 14-year-olds, $p < .01$). This variation in computer use by age is consistent with data for younger students with disabilities (Cadwallader & Wagner, 2002a), which show that 28% of 13-year-olds use e-mail and chat rooms, compared with 15% of 6- to 9-year-olds. Further, although there are no differences in the frequency of telephone interactions among teenagers, they do use the telephone to talk with friends significantly more often than preteen students with disabilities, 35% of whom reportedly receive phone calls from friends frequently ($p < .001$, Cadwallader &

Exhibit 3-3
INTERACTIONS WITH FRIENDS, BY AGE AND GENDER

	Age				Gender	
	13 and 14	15	16	17	Male	Female
Percentage who:						
Visit with friends: ^a						
Never	10.6 (1.7)	10.9 (2.1)	9.0 (1.8)	6.1 (1.9)	9.2 (1.2)	9.9 (1.6)
Frequently	29.3 (2.4)	31.2 (3.0)	29.3 (2.7)	33.6 (3.6)	34.5 (1.8)	22.7 (2.2)
Receive telephone calls from friends: ^b						
Rarely or never	25.5 (2.4)	27.7 (3.1)	22.4 (2.6)	22.5 (3.2)	26.6 (1.8)	20.8 (2.2)
Frequently	62.2 (2.7)	63.0 (3.3)	67.7 (2.9)	69.0 (3.6)	64.3 (1.9)	66.8 (2.6)
Have invited to other youth's social activities during the past year	86.0 (1.9)	85.8 (2.3)	84.3 (2.2)	84.2 (2.8)	83.7 (1.4)	88.1 (1.8)
Use e-mail or chat rooms at least weekly	32.0 (2.8)	43.7 (3.6)	40.4 (3.3)	46.9 (4.2)	38.6 (2.2)	42.0 (2.9)
Participate in none of these interactions with friends	2.5 (.9)	2.7 (1.1)	2.4 (.9)	2.5 (1.2)	2.7 (.6)	2.1 (.8)

Source: NLTS2 Wave 1 parent interviews.

^a The category "occasionally" (fewer than four times a week) is omitted from the table.

^b The category "occasionally" (one or more times a month but not every week) is omitted from the table.

Standard errors are in parentheses.

Wagner, 2002a). A pattern of expanded friendship interaction among older youth also is consistent with findings for the general student population (Brown, 1990; Csikszentmihalyi & Larson, 1984).

Gender. Parents report few differences between boys and girls in the forms of friendship interactions (Exhibit 3-3). Although boys are more likely than girls to visit with friends frequently (34% vs. 23%, $p < .001$), they are more likely than girls never or rarely to receive telephone calls from friends. There is little difference in the likelihood with which girls and boys have been invited by other youth to social activities during the past year, communicate by computer, or participate in none of the social interactions described here.

Household Income. Although some of the forms of social interaction examined in NLTS2, such as seeing friends outside of school, might not be expected to be sensitive to income differences most of the interactions are more common among higher-income youth (Exhibit 3-4). For example, the proportion of youth who never visit with friends is less for the highest-income group (5% vs. 14% for the lowest-income group, $p < .001$). Invitations to social activities also are significantly more common among higher-income youth (89% vs. 80%, $p < .001$), as is regular access to a home computer for e-mail or chat room conversations by youth who have one (49% vs. 30%, $p < .001$). These findings suggest that financial well-being may provide access to more contexts for social interaction.

Exhibit 3-4
INTERACTIONS WITH FRIENDS, BY HOUSEHOLD INCOME AND RACE/ETHNICITY

	Household Income			Race/Ethnicity		
	\$25,000 or Less	\$25,001 to \$50,000	More than \$50,000	White	African American	Hispanic
Percentage who:						
Visit with friends: ^a						
Never	13.7 (1.8)	8.3 (1.7)	5.4 (1.4)	7.0 (1.1)	8.4 (1.9)	21.9 (3.7)
Frequently	25.5 (2.3)	35.2 (2.8)	31.9 (2.7)	33.6 (1.9)	29.6 (3.2)	20.6 (3.5)
Receive telephone calls from friends: ^b						
Rarely or never	27.5 (2.4)	22.7 (2.5)	24.5 (2.6)	23.1 (1.7)	24.0 (3.0)	31.5 (4.2)
Frequently	61.0 (2.6)	66.8 (2.9)	67.1 (2.8)	67.3 (1.9)	65.5 (3.3)	56.4 (4.5)
Have been invited to other youth's social activities during the past year	79.7 (2.1)	87.5 (2.0)	89.3 (1.9)	87.4 (1.4)	82.7 (2.6)	79.5 (3.6)
Use e-mail or chat rooms at least weekly	30.2 (2.7)	38.5 (3.2)	48.7 (3.1)	43.7 (2.1)	31.0 (3.7)	32.9 (4.7)
Participate in none of these interactions with friends	3.2 (.9)	2.5 (.9)	1.6 (.8)	2.2 (.6)	2.5 (1.1)	3.9 (1.7)

Source: NLTS2 Wave 1 parent interviews.

^a The category "occasionally" (fewer than four times a week) is omitted from the table.

^b The category "occasionally" (one or more times a month but not every week) is omitted from the table.

Standard errors are in parentheses.

Race/Ethnicity. Some racial/ethnic differences in friendship interactions are evident among youth with disabilities (Exhibit 3-4). For example, although white and African American youth are quite similar in several forms of interaction, white youth are more likely to interact via e-mail or chat rooms (44% vs. 31% for African American youth, $p < .01$). Hispanic youth generally are less social than other groups. They are the most likely "never" to get together with friends outside of class (22% vs. 7% for white youth, $p < .001$), and they are less likely than other groups to receive frequent calls from friends (56% vs. 67% for white youth, $p < .05$) or to be invited to social activities (80% vs. 87%, $p < .05$). No significant differences are noted in the percentages of youth in different racial/ethnic groups who participate in none of these activities.

Summary

NLTS2 findings demonstrate that a large majority of youth with disabilities interact in a variety of ways with individual friends outside of class or organized group activities. Parents report that most youth meet with friends, receive telephone calls from friends, are invited to friends' social activities, and/or communicate with peers electronically. About 70% of youth meet with friends away from school at least "regularly," and 85% have received an invitation to a friend's social activity during the past year. Three-quarters of youth "occasionally" or "frequently" receive telephone calls from friends, and more than 70% of those who have a home computer use it to communicate via e-mail or chat rooms. Only 3% of youth reportedly participate in none of these forms of interaction with friends.

However, there are dramatic differences in social activities associated with primary disability categories, which demonstrate how functional limitations can have significant effects on social interactions. Youth with learning disabilities or speech/language, hearing, or other health impairments tend to be the most active socially. Youth with autism, multiple disabilities, and deaf-blindness have much less frequent contacts with friends, including a sizable percentage of each group who have none of the forms of social interaction described in this chapter. Nevertheless, most are not wholly out of touch with their peers; the majority do visit with friends at least “occasionally,” and most have been invited to other youths’ social activities at some time during the past year.

There is a pattern of greater social interaction among older youth, consistent with research on the general population of students. Gender differences also are noted; boys favor frequent in-person visits with friends, whereas girls are more likely to use the telephone for that purpose. The social activities of youth with disabilities also vary with race/ethnicity and income; higher-income youth with disabilities tend to be more active and Hispanic youth less active in their friendships in several ways.

The kinds of interaction with individual friends described here are not the only forms of social engagement in which youth can participate. Beyond interactions that occur naturally among students in the classroom, many youth also participate in organized group activities in which a wide range of interactions can occur. This form of social interaction is described in the next chapter, along with findings related to informal uses of time by youth with disabilities.

4. PARTICIPATION IN EXTRACURRICULAR ACTIVITIES

By Tom W. Cadwallader, Mary Wagner, and Nicolle Garza

The lives of many youth are substantially enriched by their participation in organized extracurricular activities, which are defined broadly to include adult-sanctioned organized activities that youth do outside of the classroom, whether or not they are school-sponsored.¹ Youth can engage in such activities individually, such as taking private music lessons, or in groups, such as taking part in scouting or a school club. Youth participate in extracurricular activities to be with peers, to learn new skills, to stay fit, or simply to have fun. In recognition of the importance of such activities, the federal legislation guiding American elementary and secondary education, *The No Child Left Behind Act of 2001* (P.L. 107-110) poses the following challenge for all schools: To give families—children and their parents—more out-of-school learning opportunities so they are better prepared for academic success (U.S. Department of Education, 2002). It also provides for the establishment or expansion of community learning centers as a mechanism for meeting the challenge. Reflecting the importance of extracurricular activities for students with disabilities, the Individuals with Disabilities Education Act Amendments of 1997 require Individualized Education Programs (IEPs) to address student participation in extracurricular and nonacademic activities, as well as the general education curriculum (P.L. 105-17, § 614, 111 Stat. 84). Consistent with the legislation, presence and participation in the community, including extracurricular activities, is one of the primary outcome domains for assessing the well-being of youth with disabilities posited by the National Center on Educational Outcomes (National Center on Educational Outcomes, 1994).

The social, psychological, and educational benefits of extracurricular activities are well known. Extracurricular participation has been shown to have a beneficial effect on academic performance (e.g., Marsh, 1992; Camp, 1990) and to diminish the likelihood of students' dropping out of school (Mahoney & Cairns, 1997). A correlation also has been found between extracurricular involvement and academics, results that are "consistent with the argument that participation [in extracurricular activities] promotes greater academic achievement" (Gerber, 1996, p. 48). Research also has suggested positive relationships between structured nonacademic activities and both ethnic identification (Davalos, Chavez, & Guardiola, 1999) and self-esteem (Coladarci & Cobb, 1996). Extracurricular participation also is associated with prosocial peer relations and lower rates of drug use (Borden, Donnermeyer, & Scheer, 2001; Shilts, 1991). Research has shown that spending 1 to 4 hours in extracurricular activities per week is associated with a 49% lower likelihood of using drugs and a 37% lower likelihood of becoming a teen parent (U.S. Department of Health and Human Services, 1996).

Despite these potential benefits of extracurricular activities, questions remain. For example, it is not clear whether participation in extracurricular activities produces benefits or whether already successful youth are more inclined to participate in them, or both (O'Brien & Rollefson, 1995). The specific kind of activity also may influence outcomes (Eccles & Barber, 1999). In addition, not all youth may benefit; the impacts of extracurricular programs vary for youth of different ages, socioeconomic levels, racial/ethnic groups, and genders (Berk & Goebel, 1987;

¹ Analyses similar to these were conducted as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Garza, Cadwallader, & Wagner (2002).

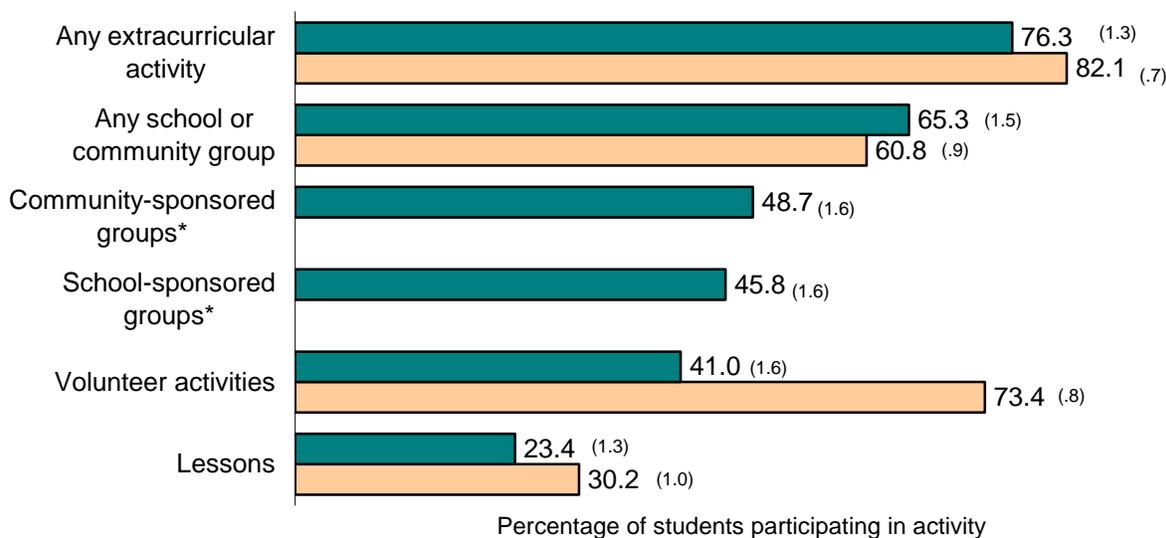
Eder & Parker, 1987; McNeal, 1995; Lisella & Serwatka, 1996). Further, little is known about the levels of participation in such activities by youth with disabilities or the extent to which they benefit from that participation.

This chapter describes the involvement of middle- and high-school-age youth with disabilities in extracurricular activities, including the frequency of their involvement and the extent to which those activities are sponsored by schools or community organizations. The kinds of activity in which youth participate are identified, as well as variations in participation for youth who differ in their primary disability classification, age, gender, household income, and race/ethnicity. These analyses rely on reports by parents of youth with disabilities regarding whether in the past year youth have taken lessons or classes outside of school,¹ participated in organized group activities at school² or in the community,³ or volunteered or did other forms of community service. If youth had participated in school or community groups, parents were asked to describe the kinds of group or groups in which youth participated

Types of Extracurricular Activity

Overall, 76% of youth with disabilities ages 13 through 17 are reported by parents to have participated during the past year in at least one of the kinds of extracurricular activity explored in NLTS2 (Exhibit 4-1). Almost two-thirds (65%) have taken part in an organized group at school

Exhibit 4-1
PARTICIPATION IN EXTRACURRICULAR ACTIVITIES



* Data for general population not available. Standard errors are in parentheses.

■ Students with disabilities (NLTS2 Wave 1 parent interviews)
■ General population (NSAF, 1999)

¹ Parents were asked whether youth participated during the past year in any “lessons or classes outside of school in things like art, music, dance, foreign language, religion, or computer skills.”

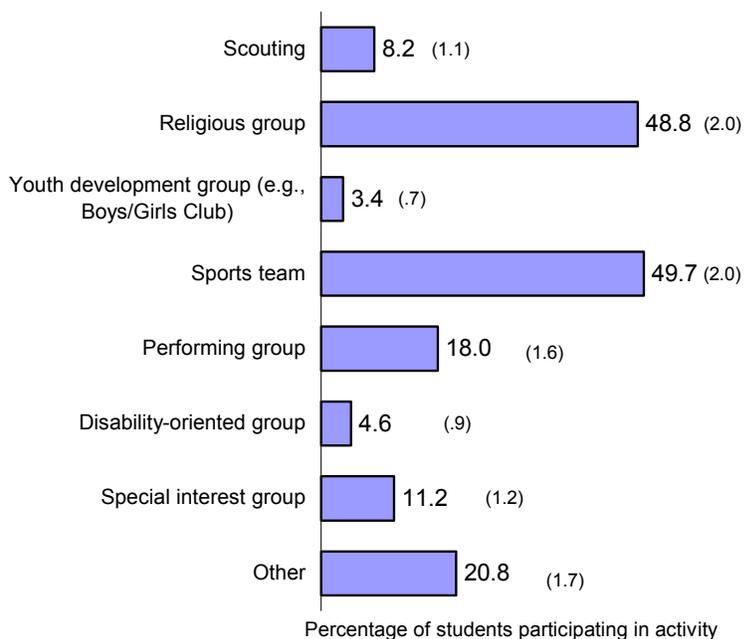
² Parents were asked whether youth participated during the past year in “any school activity outside of class, such as sports teams, band or chorus, school clubs, or student government.”

³ Parents were asked whether youth participated during the past year in “any out-of-school group activities, such as scouting, church or temple youth group, or nonschool team sports like soccer, softball, or baseball.”

or in the community. Youth are about as likely to have participated in a community-sponsored group activity as one sponsored by their school. Almost a quarter of youth with disabilities are reported to have taken lessons of some kind, and volunteer activities have been undertaken by 41% of youth with disabilities.

These rates of activity are somewhat lower than those of the general population of youth, 82% of whom have participated in one or more of these kinds of extracurricular activity ($p < .001$, National Survey of America's Families, 1999). This overall lower rate of participation by youth with disabilities results from lower rates for lessons and volunteer activities ($p < .001$). In contrast, youth with disabilities are somewhat more likely than youth in the general population to have participated in an organized group activity (65% vs. 61%, $p < .05$).

Exhibit 4-2
TYPES OF GROUPS IN WHICH STUDENTS WITH DISABILITIES PARTICIPATE



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

The types of group in which youth with disabilities participate vary widely, reflecting the wide-ranging interests that would be expected in a nationally representative group of youth (Exhibit 4-2). Sports teams are the most common group, with half of youth with disabilities playing on a sports team, compared with 54% of youth in the general population ($p < .05$; National Survey of America's Families, 1999).

Community-sponsored activities are popular with many youth; 49% have participated in religious youth groups, and 8% have taken part in scouting. Almost one in five youth have participated in a performing group, such as a band or choir, at school or in the community, and 11% have participated in other kinds of club

or other hobby clubs). Few youth (5%) have participated in a disability-oriented group.

Not surprisingly, youth who participate in extracurricular activities also have more active friendships (Exhibit 4-3). One reason may be that extracurricular participants are exposed to a wider range of social interactions and opportunities to make friends, or perhaps functional limitations that make extracurricular participation difficult for some youth similarly limit their ability to interact with friends (e.g., youth who are unable to participate in after-school programs also may not be able to visit with friends or attend other kinds of social events). Involvement with friends in every form is more common among those who have participated in extracurricular activities. For example, those who have participated in some kind of extracurricular activity are significantly more likely than nonparticipants to be reported to receive telephone calls several times a week, be invited to social activities, and communicate by

**Exhibit 4-3
FRIENDSHIP INTERACTIONS AND
PARTICIPATION IN EXTRACURRICULAR
ACTIVITIES**

	Youth Have Participated in Any Activity	
	No	Yes
Percentage who:		
Visit with friends:		
Never	16.2 (2.3)	7.4 (1.0)
Frequently	30.4 (2.9)	30.6 (1.7)
Receive telephone calls from friends:		
Rarely or never	23.8 (2.7)	14.5 (1.3)
Frequently	56.5 (3.2)	67.8 (1.7)
Have been invited to other youth's social activities	78.0 (2.6)	87.4 (1.2)
Use e-mail or chat rooms at least weekly	30.3 (3.2)	42.4 (2.0)
Do none of these activities	5.1 (1.4)	1.7 (.5)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

computer ($p < .01$ for all comparisons). Because of these relationships between active friendships and participation in extracurricular activities, the disability and demographic differences in extracurricular participation are expected to be similar to those demonstrated for friendship interactions in Chapter 3.

Disability Differences in Extracurricular Activities

Participation in extracurricular activities varies much less across disability categories than does involvement of youth with individual friendships, as reported in Chapter 3. A majority of youth in each disability category have participated in some kind of extracurricular activity during the past year, with a 16-percentage-point difference between categories in the percentage of youth thus engaged (68% to 84%, $p < .001$; Exhibit 4-4). This contrasts with the 37-percentage-point-difference between categories in youth having at least some involvement with friends.

Youth with hearing impairments are the most likely to have participated in an extracurricular activity; 84% have done so, as have 82% of youth with other health impairments and 80% of those with speech language impairments. Youth with mental retardation, emotional disturbances, autism, or multiple disabilities, including deaf-blindness, are the least active in extracurricular activities; about 30% or more of these youth had not participated in any extracurricular endeavor in the past year.

Sports teams or religious groups are the most common groups for youth in every disability category. However, participation in religious groups is more uniform across disability categories than participation on sports teams. From 44% of youth with deaf-blindness to 54% of youth with orthopedic impairments take part in religious groups. In contrast, participation on sports teams varies more widely, from 29% of youth with autism to 62% of those with hearing impairments. Performing groups are particularly popular among youth with visual impairments, among whom 37% have participated in a performing group ($p < .01$ compared with youth with learning disabilities). Although participation in disability-oriented groups is not common overall, from 18% to 27% of youth with mental retardation, orthopedic impairments, autism, multiple disabilities, or deaf-blindness have belonged to such groups in the past year ($p < .001$ compared with youth with learning disabilities).

Exhibit 4-4
PARTICIPATION IN EXTRACURRICULAR ACTIVITIES, BY DISABILITY CATEGORY

	Learning Disability	Speech/Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage who had participated in:												
Any extracurricular activity	78.3 (2.0)	80.5 (1.9)	69.7 (2.3)	70.1 (2.3)	83.5 (2.1)	78.2 (2.9)	74.2 (2.4)	81.9 (1.8)	70.2 (2.4)	73.4 (4.1)	67.9 (2.5)	70.9 (4.5)
Lessons or classes outside of school	23.6 (2.1)	28.5 (2.2)	19.5 (2.0)	19.6 (2.0)	30.0 (2.6)	35.3 (3.4)	28.5 (2.5)	31.3 (2.2)	30.3 (2.4)	28.6 (4.2)	18.8 (2.1)	29.5 (4.5)
Organized group	68.2 (2.3)	71.5 (2.2)	55.6 (2.5)	57.0 (2.5)	74.6 (2.5)	63.5 (3.4)	63.0 (2.6)	71.3 (2.1)	55.8 (2.6)	61.6 (4.5)	57.7 (2.6)	59.6 (4.9)
Volunteer activity	42.8 (2.4)	46.3 (2.5)	33.2 (2.4)	36.9 (2.5)	43.9 (2.9)	43.0 (3.5)	39.9 (2.7)	47.0 (2.4)	34.7 (2.5)	41.4 (4.5)	32.5 (2.5)	34.0 (4.7)
Percentage of group members who had belonged to:												
Sports team	52.7 (3.0)	57.0 (3.0)	39.3 (3.4)	42.2 (3.4)	61.8 (3.3)	38.4 (4.4)	29.9 (3.3)	49.6 (2.9)	29.0 (3.4)	43.1 (5.7)	35.9 (3.7)	45.9 (6.7)
Religious group	48.6 (3.0)	48.5 (3.0)	49.2 (3.5)	49.8 (3.4)	45.5 (3.4)	45.5 (4.5)	53.6 (3.6)	50.7 (2.9)	48.7 (3.8)	50.7 (5.7)	45.2 (3.8)	44.3 (6.7)
Scouting	8.0 (1.6)	8.1 (1.6)	8.2 (1.9)	7.5 (1.8)	10.6 (2.1)	6.9 (2.3)	8.8 (2.0)	11.8 (1.8)	9.2 (2.2)	9.3 (3.3)	7.0 (1.9)	10.9 (4.2)
Performing group	18.0 (2.3)	28.3 (2.7)	12.7 (2.3)	14.3 (2.4)	14.9 (2.4)	36.9 (4.3)	25.4 (3.1)	23.7 (2.4)	17.1 (2.9)	25.5 (5.0)	13.9 (2.6)	17.2 (5.1)
Special-interest group	11.2 (1.9)	12.3 (2.0)	10.1 (2.1)	10.4 (2.1)	12.2 (2.3)	17.9 (3.5)	12.0 (2.3)	13.0 (2.0)	7.3 (2.0)	12.5 (3.8)	10.9 (2.4)	8.0 (3.6)
Youth development group	2.2 (.9)	3.2 (1.1)	8.0 (1.9)	6.6 (1.7)	3.0 (1.2)	2.7 (1.5)	3.8 (1.4)	3.1 (1.0)	4.1 (1.5)	2.1 (1.6)	4.4 (1.6)	4.2 (2.7)
Disability-oriented group	1.8 (.8)	2.4 (.9)	18.1 (2.7)	3.9 (1.3)	7.0 (1.8)	11.4 (2.9)	17.8 (2.8)	5.1 (1.3)	27.3 (3.4)	9.7 (3.4)	18.6 (3.0)	21.0 (5.5)
Other group	20.6 (2.5)	20.1 (2.5)	27.0 (3.1)	13.5 (2.3)	22.5 (3.0)	37.6 (4.4)	26.5 (3.1)	19.7 (2.1)	30.0 (3.5)	28.8 (5.8)	29.0 (3.4)	28.0 (6.0)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Demographic Differences in Extracurricular Activities

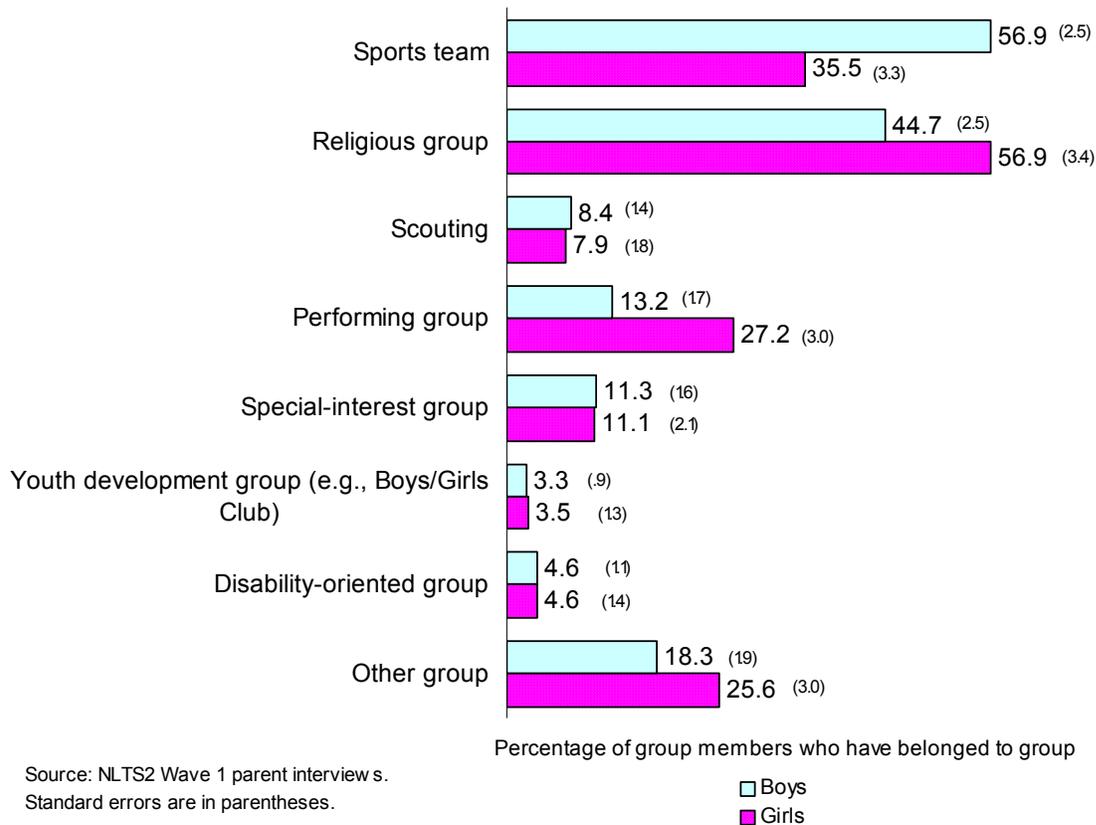
Age. The overall level of participation in extracurricular activities does not differ significantly between age groups, ranging from 79% at ages 13 and 14 to 76% at age 17. The level of activity for middle- and high-school-age youth also does not differ markedly from that of elementary school students (73%; Garza, Cadwallader, & Wagner, 2002). Similarly, the rate at which teens have participated in each of the individual activities does not differ between 13- and 17-year-olds.

However, the rates of participation in several individual activities are markedly different for teens than for much younger students. For example, 46% of 13- to 17-year-olds have participated in a school-sponsored group during the past year, compared with 29% of 6- to 13-year-olds ($p < .001$; Garza, Cadwallader, & Wagner, 2002). This increased involvement in school-sponsored extracurricular activities among teens may reflect the greater number of such

groups sponsored in middle and high schools relative to elementary schools. In addition, volunteer activities and community service are more common among teens (41%) than among younger students (30%, $p < .001$; Garza, Cadwallader, & Wagner, 2002). Volunteerism is encouraged by many youth development organizations across the United States, through the U.S. Department of Education, the Corporation for National Service, and The National and Community Service Trust Act of 1993. Volunteerism also has become part of some service learning curricula at the high school level, and some high schools now specify a certain number of hours of community service as a graduation requirement. These developments may play a part in the higher rates of volunteerism among high school students.

Gender. There are no significant differences between boys and girls in the extent to which they participate at all in extracurricular activities or in school or community groups or volunteer activities. However, girls are significantly more likely to have taken lessons than boys (30% vs. 20%, $p < .001$). There also are significant differences in the kinds of group in which boys and girls participate (Exhibit 4-5). Boys are significantly more likely to have played on sports teams (57% vs. 36%, $p < .001$). In contrast, girls are more likely than boys to have been in religious (57% vs. 45%, $p < .01$) or performing groups (27% vs. 13%, $p < .001$). These choices of activity

Exhibit 4-5
GROUP MEMBERSHIP OF BOYS AND GIRLS WITH DISABILITIES



are consistent with parents' reports of their adolescent children's strengths or aptitudes (Cameto, Cadwallader, & Wagner, 2003).

Household Income. Household income is related to the participation of youth with disabilities in extracurricular activities of several kinds (Exhibit 4-6). Youth from wealthier households are significantly more likely to have taken part in an extracurricular activity than youth from lower-income households (83% for the highest-income group, compared with 70% of those in the lowest-income group, $p < .001$) and to have taken part in lessons or classes, organized groups, or volunteer activities ($p < .001$), with the greatest difference being in involvement in volunteer or community service activities. These findings suggest that there may be financial barriers to access or entry into these activities for lower-income youth. However, there are no significant differences in the specific kinds of group to which youth of different household income levels have belonged.

Exhibit 4-6
PARTICIPATION IN EXTRACURRICULAR ACTIVITIES,
BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	\$25,000 or Less	\$25,001 to \$50,000	More than \$50,000	White	African American	Hispanic
Percentage who have participated in:						
Any extracurricular activity	69.6 (2.4)	76.5 (2.5)	83.4 (2.2)	80.2 (1.6)	73.6 (3.0)	63.0 (4.3)
Lessons or classes outside of school	18.3 (2.0)	21.6 (2.4)	30.1 (2.7)	23.8 (1.7)	23.8 (2.9)	19.1 (3.5)
Organized group	57.0 (2.5)	66.4 (2.8)	73.3 (2.6)	68.7 (1.9)	64.9 (3.2)	49.6 (4.4)
Volunteer activity	32.1 (2.4)	40.1 (2.9)	52.2 (3.0)	47.3 (2.0)	30.3 (3.1)	27.7 (4.0)
Percentage of group members who have belonged to:						
Sports team	44.3 (3.6)	47.4 (3.9)	52.6 (3.5)	49.3 (2.5)	51.3 (4.6)	50.1 (6.4)
Religious group	48.9 (3.6)	46.9 (3.9)	51.1 (3.5)	50.8 (2.5)	49.5 (4.6)	37.4 (6.2)
Scouting	6.0 (1.7)	10.6 (2.4)	8.6 (1.9)	9.6 (1.5)	6.5 (2.2)	4.9 (2.8)
Performing group	15.4 (2.6)	16.6 (2.9)	17.9 (2.7)	18.6 (2.0)	17.9 (3.5)	15.3 (4.6)
Special-interest group	9.0 (2.1)	10.8 (2.4)	13.1 (2.3)	11.9 (1.6)	6.8 (2.3)	13.7 (4.4)
Youth development group	3.3 (1.3)	3.7 (1.5)	3.6 (1.3)	2.4 (.8)	5.1 (2.0)	6.6 (3.2)
Disability-oriented group	4.5 (1.5)	5.3 (1.8)	4.6 (1.5)	5.2 (1.1)	4.1 (1.8)	2.8 (2.1)
Other group	21.5 (2.9)	20.2 (3.2)	21.0 (2.7)	20.8 (2.0)	21.5 (3.7)	18.9 (5.1)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Race/Ethnicity. Differences in participation in extracurricular activities are apparent for youth who differ in their race/ethnicity (Exhibit 4-6). Most notably, Hispanic youth are the least likely to have participated in each of the kinds of activity investigated in NLTS2; 63% of Hispanic youth have participated in some kind of extracurricular activity, compared with 80% of white ($p<.001$) and 74% of African American youth ($p<.05$). Significant differences also are noted for their participation in organized groups and volunteer or community service activities ($p<.001$ for white youth and $p<.01$ for African American youth). Volunteerism also is lower for African American than white youth (30% vs. 47%, $p<.001$). However, there are no significant differences in the specific kinds of group joined by group members, with the exception that Hispanic youth are less likely than white youth to have participated in religious groups (37% vs. 51%, $p<.05$).

Summary

The majority of both youth with disabilities and youth in the general population groups are active in organized extracurricular activities during their middle and high school years. More than three-fourths of youth with disabilities participate in extracurricular activities and programs through which they can explore interests, learn skills, develop friendships, and participate actively as members of their schools and communities. However, rates of participation are significantly lower than those of youth in the general population, primarily because of lower rates of participation of youth with disabilities in lessons and volunteer activities. However, participation in school- or community-sponsored group activities is somewhat more common among youth with disabilities than among youth in the general population. Youth with disabilities who participate in activities tend to be youth who also have more frequent interactions with individual friends.

Participation in extracurricular activities is not equally common for youth across disability groups. Youth with disabilities such as mental retardation, multiple disabilities, or deaf-blindness are much less likely to have participated in extracurricular activities, whereas youth with speech, hearing, or other health impairments are the most active overall.

Choices of activity and participation level among youth with disabilities are related to a variety of demographic factors and generally mirror those of youth in the general population. Boys and girls with disabilities engage in extracurricular activities in about the same proportions, although differences in their choices of the kinds of group to which they belong reflect traditional gender roles. Financial barriers, however, may hinder participation in some kinds of extracurricular activities; youth from lower-income households participate in extracurricular activities at a lower rate overall, as do minority youth.

Analyses of subsequent waves of NLTS2 data will explore the shifts in patterns of extracurricular activity as the developmental changes associated with increasing age and maturity take effect and as the context for such activities changes for many youth from high school to work or postsecondary education.

5. EMPLOYMENT AMONG YOUTH WITH DISABILITIES

By Camille Marder, Denise Cardoso, and Mary Wagner

Work always has been part of the lives of many youth in the United States (Kerschner, 2000). In recent years, approximately 80% of youth reported holding jobs at some point during high school (National Research Council, 1998). Entry into the labor market often begins earlier than high school, with approximately half of youth ages 12 and 13 reporting that they work (Rothstein & Herz, 2000). With the majority of youth working at some time in their middle- or high-school years, youth employment has become the norm in American society.

Although statistics are gathered regularly about the employment of American youth in the general population, comparatively little is known about the employment patterns of youth with disabilities. This chapter seeks to add to current knowledge by addressing several key questions:

- What is the extent of employment among 13- to 17-year olds with disabilities?
- How much of their employment is work-study, and how much is not school-related?
- What are the characteristics of youth's jobs?
- How do employment experiences differ for youth with different disabilities and demographic characteristics?

According to parents' reports, almost 60% of youth with disabilities were employed during a 12-month period spanning 2000-01—some at work-study jobs and others at non-school-related jobs. Each of these types of job is described below.

Work-Study Employment

Work-study employment in high school involves part-time work for students, either on or off the school campus, that is sanctioned by the school. Some work-study programs arrange for jobs for students, whereas others require students to find their own jobs. Through work-study, students can learn basic employment skills—the importance of showing up, being on time, and doing a job well—as well as skills related to a specific type of job. Work-study students may receive school credit, pay, or both.

In all, approximately 15% of youth with disabilities hold work-study jobs in a given school year. The most common types of job are in food service (19%), maintenance (16%), and clerical work (15%, Exhibit 5-1). In addition, jobs in personal care, trades, and retail each account for 8% to 9% of work-study employment.

**Exhibit 5-1
MOST COMMON TYPES OF WORK-STUDY
JOBS HELD BY STUDENTS WITH
DISABILITIES**

	Percentage	Standard Error
Youth worked at:		
Food service	18.8	3.7
Maintenance*	15.8	3.5
Clerical**	15.2	3.4
Personal care	9.0	2.7
Trades***	8.6	2.7
Retail****	7.7	2.6

Source: NLTS2 Wave 1 parent interviews.

* Includes cleaning and grounds-keeping.

** Includes office work; sorting, folding, and stuffing; and stocking.

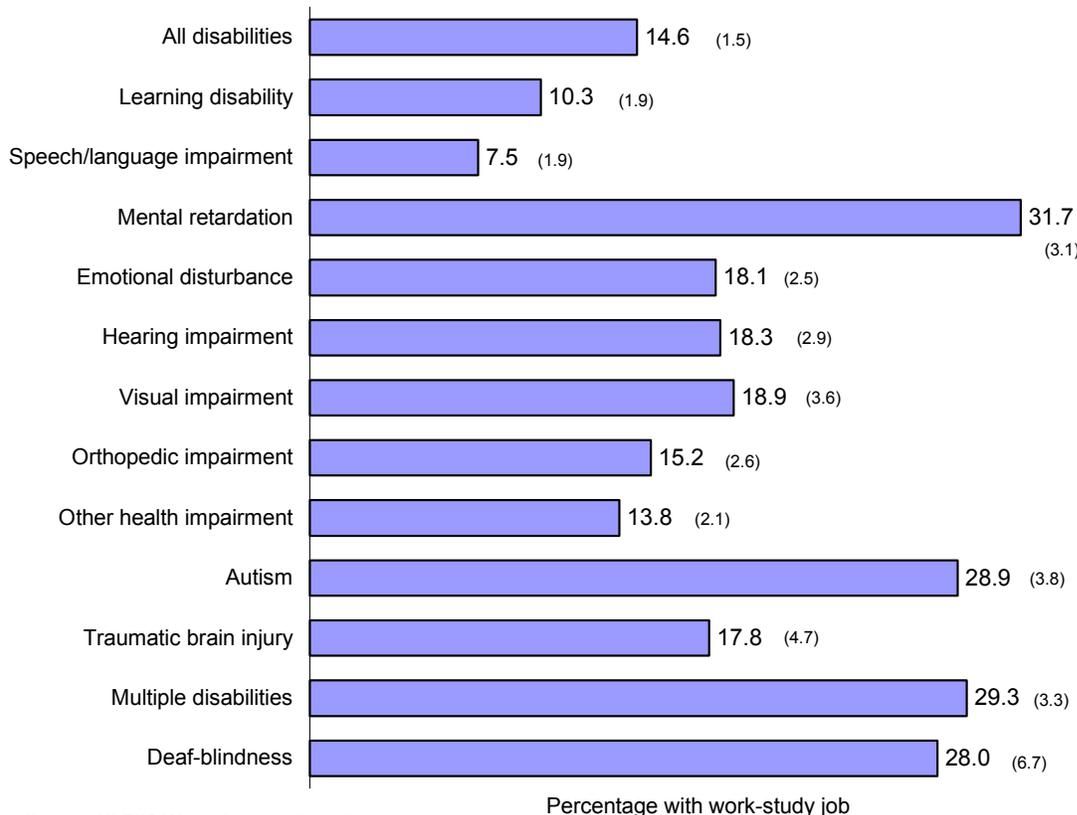
*** Includes auto repair and apprenticeship at skilled trades.

**** Includes sales and cashiering.

The vast majority of youth (91%) who have work-study jobs receive school credit and/or pay for their work. The most common arrangement, which applies to 48% of work-study students with disabilities, is to receive school credit but not pay. Another 28% receive both school credit and pay, and 14% receive pay only.

The percentages of youth in the various disability categories with work-study jobs differ considerably (Exhibit 5-2). At one end of the continuum, work-study is the source of employment for 8% of youth with speech impairments and 10% of youth with learning disabilities. In contrast, approximately 30% of youth with mental retardation, autism, multiple disabilities, or deaf-blindness hold work-study jobs.

**Exhibit 5-2
WORK-STUDY EMPLOYMENT, BY DISABILITY CATEGORY**



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Compensation for work-study jobs also varies for youth with different types of disabilities. For example, 98% of work-study students with emotional disturbances, but only 64% of work-study students with orthopedic impairments, receive either school credit or pay for their work ($p < .001$). Youth with learning disabilities; hearing, orthopedic, or other health impairments; or multiple disabilities are twice as likely to receive only school credit as to receive both school credit and pay ($p < .05$). In contrast, students with other types of disabilities are about as likely to have one arrangement as the other.

With one exception, the age, gender, household income, and race/ethnicity of youth with disabilities are not associated with their likelihood of having a work-study job or its characteristics. The exception is that girls are significantly more likely than boys to work in personal-care jobs (20% vs. 3%, $p < .01$).

Regular Paid Employment

Paid employment that is not school related (i.e., not work-study) accounts for the vast majority of the employment of youth with disabilities who have jobs. According to parents, somewhat more than half of youth with disabilities (54%) hold regular paid jobs during a 1-year period, similar to the 50% of 13- to 17-year-olds in the general population who did so in 1998.¹

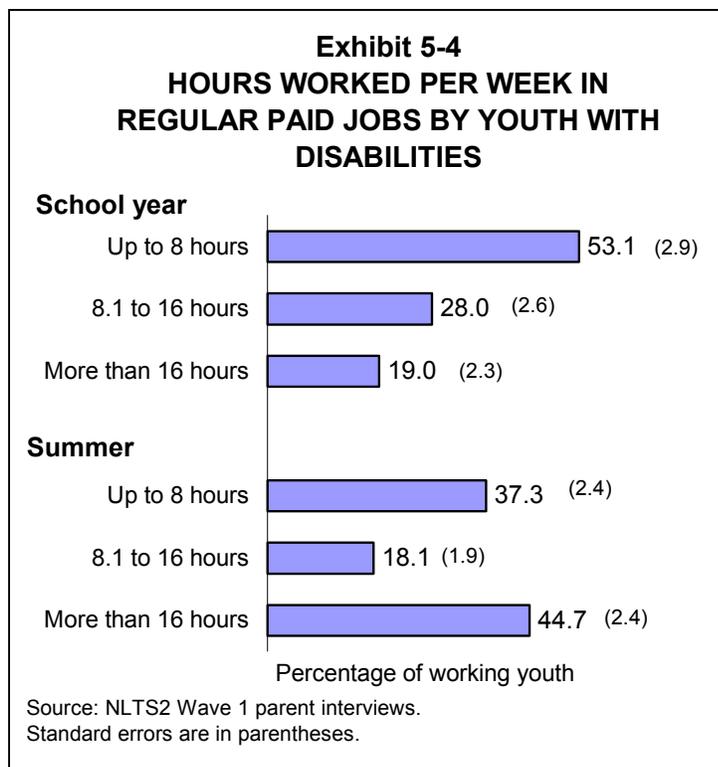
Approximately one-third of youth work during both the summer and the school year (32%); fewer (17%) work only during the summer, and still fewer (5%) work only during the school year. However, the fact that approximately one-third of youth work during both the summer and the school year does not mean that they work the entire year. At a given point in time during a 1-year period, 22% of youth with disabilities are employed.

Exhibit 5-3 MOST COMMON TYPES OF REGULAR PAID JOBS HELD BY WORKING YOUTH WITH DISABILITIES		
	Percentage	Standard Error
Maintenance*	23.5	1.9
Personal care	19.1	1.8
Food service	16.4	1.7
Trades**	7.9	1.2
Retail***	6.4	1.1
Clerical****	6.2	1.1

* Includes cleaning and grounds-keeping.
 ** Includes auto repair and apprenticeship at skilled trades.
 *** Includes sales and cashiering.
 **** *Includes office work; sorting, folding, and stuffing; and stocking.

The most common types of job held by youth with disabilities are in maintenance, personal care, or food service (Exhibit 5-3). Together, these types of job account for almost 60% of youth employment.

¹ Calculated from data for 13- to 17-year-olds from the 1998 National Longitudinal Survey of Youth (U.S. Bureau of Labor Statistics). Downloaded from http://data.bls.gov/labjava/nls_outside.jsp.



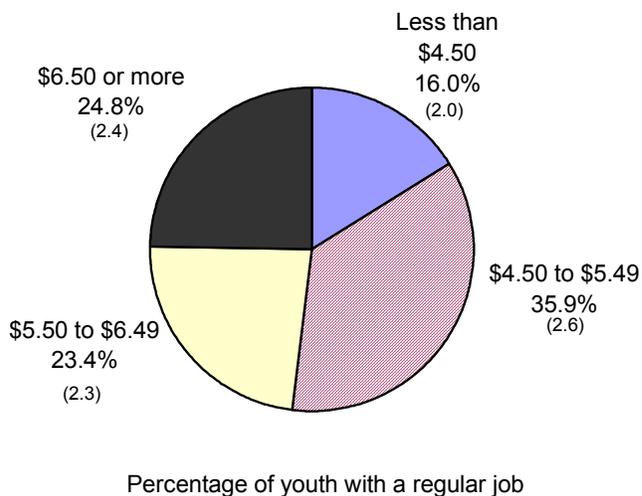
Most youth with disabilities who are employed during the school year (53%) work no more than 8 hours a week (Exhibit 5-4). During the summer, youth tend to work more hours, with more than twice as many (45%) working more than 16 hours per week during the summer as during the school year (19%, $p < .001$). Half of employed youth with disabilities earn minimum wage or more (Exhibit 5-5). However, one in four earn \$6.50 per hour or more, and 16% earn less than \$4.50 per hour.² Compared with youth in the general population,³ youth with disabilities are less likely to earn the minimum wage or more (50% vs. 69%, $p < .001$).⁴

² The federal minimum wage during 2001, when NLTS2 data were collected, was \$5.15. However, many jobs at which youth work, including some food service jobs and freelance jobs (such as babysitting or lawn mowing), are exempt from the federal minimum or may pay a training wage for a limited time. Further, most NLTS2 parents reported youth's wages in round dollar figures. For example, according to parents' reports, 97% of youth in the \$4.50 to \$5.49 category earn \$5.00 per hour. Some of these youth actually may earn the minimum wage. Thus, the calculated percentage earning the minimum wage or more may underestimate the actual percentage because it excludes youth reported to earn \$5.00 per hour who actually earn the minimum wage of \$5.15.

³ Earnings for youth in the general population was calculated from data for 13- to 17-year-olds from the National Adolescent Health Survey. Two differences should be noted. First, in the National Adolescent Health Survey, hourly earnings were reported by youth, rather than by their parents (see Rothstein & Herz, 2000, and Freeman & Medoff, 1982, regarding the effects of differences in respondent regarding youth employment). Second, the time periods covered differ somewhat; NLTS2 data were collected in 2001, and the National Adolescent Health Survey was conducted in 1996. The minimum wage at the time of data collection was \$4.25 per hour.

⁴ Earnings data collected for the general population in 1997 are not directly comparable to those collected for NLTS2 in 2001; they would be expected to be lower because of inflation alone, apart from any real differences in earning power between the two groups of youth. However, earnings relative to the minimum wage standard are provided because changes in that standard over time account in part for the effects of inflation.

**Exhibit 5-5
HOURLY PAY OF YOUTH WITH DISABILITIES**



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

**Disability Differences in
Employment Patterns**

Employment rates of youth with disabilities vary considerably across the disability categories (Exhibit 5-6). Youth with learning disabilities or other health impairments are the most likely to have been employed in a 1-year period (60% and 56%, respectively), with their rates of employment somewhat exceeding that of the general population of youth. They also have the highest rates of current employment among youth with disabilities (25% and 24%), although these rates also are relatively high for youth with speech or hearing impairments, emotional disturbances, or traumatic brain injuries.

In contrast, 14% of youth with autism, fewer than one-fourth of those with multiple disabilities or deaf-blindness, and fewer

than one-third of youth with orthopedic impairments are employed in a given year. Rates of current employment for youth in these categories range from 5% to 10%. For all youth, the most common employment pattern is to work during both the school year and the summer.

Jobs in maintenance, food service, or personal care account for more than half of employment regardless of disability category, although the percentages of youth employed at each of these types of job differ somewhat. For example, maintenance jobs are particularly common for youth with mental retardation, emotional disturbances, or other health impairments (between 27% and 32%). In contrast, personal-care jobs are particularly common for youth with hearing or visual impairments (24% and 27%, respectively); these also are the categories with the largest percentages of girls. With few exceptions, no other single type of job accounts for the employment of more than 10% of youth in any disability category.

The majority of youth in every disability category who work during the school year work no more than 8 hours per week. Youth with visual or orthopedic impairments or autism are the most likely to work relatively few hours. In contrast, youth with emotional disturbances or traumatic brain injuries are the most likely to work more than 16 hours per week during the school year, almost one-fourth of employed youth in those categories do so. All groups of youth tend to work more hours during the summer than during the school year. More than 40% of youth with learning disabilities, emotional disturbances, or hearing, visual, or other health impairments work more than 16 hours per week during the summer.

Across the disability categories, between 41% and 56% of youth earn the minimum wage or more. Youth with hearing or other health impairments are the most likely to earn the minimum wage or more, whereas those with visual impairments, mental retardation, or multiple disabilities are the least likely to be paid at that rate.

Exhibit 5-6
EMPLOYMENT EXPERIENCES OF YOUTH WITH DISABILITIES,
BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Dis-tur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage holding regular paid jobs during the past year:												
At any time	60.1 (2.4)	49.7 (2.5)	35.9 (2.5)	52.6 (2.6)	47.4 (2.9)	35.7 (3.4)	27.4 (2.5)	56.0 (2.4)	14.5 (1.9)	43.6 (4.5)	21.5 (2.2)	22.5 (4.5)
Only during the summer	17.8 (1.9)	15.0 (1.8)	14.1 (1.8)	15.7 (1.9)	14.5 (2.1)	12.6 (2.4)	9.2 (1.6)	18.5 (1.9)	4.9 (1.2)	9.7 (2.7)	6.6 (1.4)	8.7 (3.0)
Only during the school year	5.4 (1.1)	5.6 (1.2)	4.3 (1.0)	5.6 (1.2)	4.1 (1.2)	4.7 (1.5)	2.9 (.9)	5.8 (1.1)	3.7 (1.0)	6.3 (2.2)	2.9 (.9)	5.0 (2.3)
During both the summer and the school year	36.9 (2.4)	29.0 (2.3)	17.5 (1.9)	31.3 (2.4)	28.8 (2.6)	18.4 (2.8)	15.3 (2.0)	31.6 (2.2)	6.0 (1.3)	27.6 (4.1)	12.0 (1.8)	8.7 (3.0)
Percentage currently holding regular paid jobs	25.1 (2.1)	22.0 (2.1)	11.7 (1.6)	19.1 (2.0)	22.1 (2.4)	15.1 (2.5)	9.6 (1.7)	23.8 (2.0)	5.2 (1.2)	17.8 (3.5)	8.1 (1.5)	7.8 (2.8)
Percentage working at:												
Maintenance	21.9 (2.7)	20.2 (2.9)	32.5 (4.1)	27.7 (3.2)	17.7 (3.4)	20.2 (5.4)	21.3 (4.7)	26.7 (2.8)	23.6 (6.0)	22.3 (6.2)	23.8 (5.2)	--
Personal care	20.7 (2.6)	22.2 (3.1)	13.8 (3.0)	12.6 (2.4)	23.7 (3.8)	27.1 (5.9)	22.2 (4.8)	15.6 (2.3)	9.2 (4.1)	20.7 (6.1)	19.8 (4.8)	--
Food service	16.3 (2.4)	14.0 (2.5)	16.8 (3.3)	18.9 (2.8)	14.0 (3.1)	12.8 (4.5)	6.7 (2.9)	16.0 (2.3)	17.8 (5.4)	19.7 (6.0)	16.4 (4.5)	--
Trades	8.1 (1.7)	5.6 (1.7)	6.1 (2.1)	9.8 (2.1)	5.1 (2.0)	1.1 (1.4)	4.5 (2.4)	8.1 (1.7)	6.5 (3.5)	4.6 (3.1)	5.1 (2.7)	--
Retail	6.5 (1.6)	8.5 (2.0)	4.5 (1.8)	6.1 (1.7)	9.4 (2.6)	10.8 (4.1)	4.9 (2.5)	7.1 (1.6)	2.2 (2.1)	12.4 (4.9)	3.6 (2.3)	--
Clerical	5.5 (1.5)	7.7 (2.0)	9.2 (2.5)	7.8 (1.9)	7.9 (2.4)	9.1 (3.8)	14.5 (4.1)	5.0 (1.4)	17.6 (5.4)	5.8 (3.5)	6.7 (3.0)	--
Percentage working number of hours at: ^a												
School year jobs												
Up to 8 hours	51.9 (4.0)	61.0 (4.4)	56.0 (5.8)	51.8 (4.5)	60.2 (5.5)	67.0 (7.7)	73.1 (6.4)	55.9 (3.9)	68.6 (8.5)	58.6 (8.5)	63.5 (7.5)	--
More than 16 hours	19.4 (3.1)	13.4 (3.1)	18.3 (4.5)	23.3 (3.8)	14.9 (4.0)	17.6 (6.2)	3.9 (2.8)	13.0 (2.7)	4.4 (3.8)	23.3 (7.3)	17.3 (5.9)	--
Summer jobs												
Up to 8 hours	35.5 (3.2)	44.0 (3.9)	48.1 (4.9)	34.9 (3.7)	32.3 (4.4)	39.7 (7.3)	56.3 (6.2)	41.6 (3.3)	44.6 (8.0)	50.0 (8.4)	47.7 (7.0)	--
More than 16 hours	45.7 (3.4)	39.2 (3.9)	37.3 (4.7)	48.9 (3.9)	48.2 (4.7)	43.8 (7.4)	26.4 (5.5)	41.5 (3.3)	35.3 (7.7)	36.9 (8.1)	28.2 (6.3)	--
Percentage earning the minimum wage or more	50.9 (3.7)	50.3 (4.2)	43.1 (5.4)	50.1 (4.3)	53.2 (5.1)	41.3 (7.8)	46.7 (6.7)	56.0 (3.6)	48.7 (8.6)	47.6 (9.4)	43.8 (7.5)	--

Source: NLTS2 Wave 1 parent interviews.

--Too few to report separately.

^a The category 8.1 to 16 hours is omitted from the table.

Standard errors are in parentheses.

Demographic Differences in Employment Patterns

In the general population, age, gender, race/ethnicity, and family income are associated with youth's probability of employment (Huang, Pergamit, & Shkolnik, 2001; Rothstein, 2001). In addition, being older and being male are related to higher wages for working youth. This section explores the associations between the demographic characteristics of youth with disabilities and their probability of employment and hourly pay, in addition to the types of jobs held and hours worked.

Age. Age is among the strongest influences on youth's employment patterns (Herz & Kosanovich, 2000; Rothstein & Herz, 2000). In the general population, employment rates increase, the types of job held change, and both the number of hours worked and hourly pay increase across the 13- through 17-year-old age range. Among youth with disabilities, the same pattern holds true (Exhibit 5-7). Among 13- and 14-year-olds, 42% work during a 1-year period. The employment

Exhibit 5-7 EMPLOYMENT EXPERIENCES OF YOUTH WITH DISABILITIES, BY AGE

	13 or 14	15	16	17
Percentage holding regular paid jobs during the past year:				
At any time	42.2 (2.7)	52.5 (3.4)	59.8 (3.0)	66.8 (3.7)
During both the summer and the school year	23.8 (2.4)	30.8 (3.1)	33.6 (2.9)	45.6 (3.9)
Percentage currently holding regular paid jobs	9.3 (1.6)	15.6 (2.5)	29.6 (2.8)	39.0 (3.8)
Percentage working at:				
Maintenance	36.7 (4.3)	29.9 (4.5)	17.9 (3.2)	10.8 (3.1)
Personal care	27.8 (4.0)	22.1 (4.1)	14.9 (3.0)	12.3 (3.2)
Food service	4.2 (1.8)	11.0 (3.1)	22.0 (3.5)	27.2 (4.4)
Trades	5.8 (2.1)	7.8 (2.6)	8.6 (2.3)	9.4 (2.9)
Retail	4.9 (1.9)	2.9 (1.7)	8.8 (2.4)	8.3 (2.7)
Clerical	1.7 (1.1)	4.6 (2.1)	9.1 (2.4)	8.9 (2.8)
Percentage working during the school year: ^a				
Up to 8 hours	82.0 (4.4)	67.7 (5.9)	39.0 (5.1)	32.3 (5.6)
More than 16 hours	5.6 (2.7)	9.4 (3.7)	27.5 (4.7)	28.8 (5.4)
Percentage working in summer jobs: ^a				
Up to 8 hours	61.0 (4.7)	44.0 (5.3)	27.6 (4.0)	18.2 (4.0)
More than 16 hours	21.8 (4.0)	34.3 (5.0)	54.5 (4.4)	66.2 (4.9)
Percentage earning minimum wage or more	37.3 (5.6)	39.2 (5.6)	54.5 (4.7)	64.8 (5.2)

Source: NLTS2 Wave 1 parent interviews.

^aThe category 8.1 to 16 hours is omitted from the table.

Standard errors are in parentheses.

rate rises steadily, to 67% among 17-year-olds ($p < .001$), a 25 percentage point increase over the 5-year age span. Neither summer-only nor school-year-only employment rates change a great deal; the real growth is in the percentage of youth who work in both the summer and the school year; it nearly doubles from ages 13 to 17 (from 24% to 46%, $p < .001$). Over the same age span, current employment rates increase 30 percentage points—from 9% to 39% ($p < .001$).

Almost two-thirds of working 13- and 14-year-olds with disabilities work in either maintenance or personal-care jobs. However, there are significant changes between the ages of 15 and 16, when many states permit youth to begin working for licensed employers. This opportunity can prompt a move from informal work, such as babysitting or lawn mowing, to more formal employment. So, for example, among 16-year-olds, 18% of youth work in maintenance jobs, compared with 30% of 15-year-olds ($p < .05$). At the same time, the percentage working in food service jobs increases to 22% for 16-year-olds from 11% for 15-year-olds ($p < .01$). At age 17, the trend continues, with more youth working in food service jobs (27%) than in maintenance jobs or personal-care jobs (11% and 12%, respectively, $p < .05$).

The number of hours worked per week in summer jobs is progressively higher for each age cohort. For example, among 13- and 14-year-olds, 61% work up to 8 hours per week, and 22% work more than 16 hours per week. In contrast, among 17-year-olds, these percentages more than reverse, with approximately 18% working up to 8 hours and 66% working more than 16 hours.

Neither hours worked in school year jobs nor hourly pay shows this steady increase for each age group, but there are marked changes between 15- and 16-year-olds. A large majority of employed 13- through 15-year-olds with disabilities work up to 8 hours, and about 8% work more than 16 hours a week. In contrast, more than one-fourth of both 16- and 17-year-olds, work more than 16 hours per week ($p < .01$ between 15- and 17-year-olds). Similarly, the younger age groups are least likely to be paid the minimum wage or more (37% and 39% for 13- through 15-year-olds), whereas 17-year-olds are the most likely to be paid at that rate (65%, $p < .001$).

Gender. In the general population, boys and girls have similar employment rates (Rothstein, 2001; Herz & Kosanovich, 2000). However, 14- and 15-year-old boys are more likely than girls to work at formal jobs for licensed employers, are less likely to work at informal jobs (Rothstein & Herz, 2000), and typically earn slightly more. Employment patterns of youth with disabilities follow similar patterns (Exhibit 5-8), except that holding only a summer job is more common for boys with disabilities than for girls (18% vs. 13%, $p < .05$). Like their peers in the general population, the types of job boys and girls hold differ. For example, maintenance jobs are the most common types of job for boys, accounting for almost one-third of their employment, whereas personal-care, including babysitting, is by far the most common type of job for girls, accounting for almost half of their employment. Wage differences are pronounced, particularly at the high and low ends of the earnings spectrum, with 57% of boys earning the minimum wage or more, compared with 37% of girls ($p < .001$). There are no significant differences in the hours that boys and girls work per week during the school year or the summer.

**Exhibit 5-8
EMPLOYMENT EXPERIENCES OF
YOUTH WITH DISABILITIES, BY
GENDER**

	Male	Female
Percentage holding regular paid jobs during the past year:		
At any time	56.0 (2.0)	49.9 (2.7)
Only during the summer	18.3 (1.5)	13.1 (1.8)
Only during the school year	5.1 (.9)	5.6 (1.3)
During both the summer and the school year	32.6 (1.9)	31.3 (2.5)
Percentage working at:		
Maintenance	30.3 (2.5)	8.6 (2.3)
Personal care	6.5 (1.4)	47.0 (4.1)
Food service	17.3 (2.1)	14.3 (2.9)
Trades	11.1 (1.2)	.8 (2.7)
Retail	4.7 (1.2)	10.2 (2.5)
Clerical	6.0 (1.3)	6.8 (2.1)
Percentage earning minimum wage or more	56.7 (3.2)	37.1 (4.8)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Household Income. In the general population, youth from families with higher incomes have higher rates of employment and higher wages (Huang, Pergamit, & Shkolnik, 2001; Johnson & Lino, 2000; Herz & Kosanovich, 2000). This pattern also holds among youth with disabilities (Exhibit 5-9). The 1-year employment rate of youth from families with incomes of more than \$25,000 is approximately 20 percentage points higher than that of youth from lower-income families (60% and 64% vs. 42%, $p < .001$). Current employment rates of youth with disabilities from families with incomes of more than \$25,000 are more than double that of youth from lower-income families (25% and 30% vs. 12%, $p < .001$). The percentage of youth earning the minimum wage or more also is higher among youth in the highest-income group (57%) than among those in the lowest-income group (41%, $p < .05$).

For the most part, there are no systematic differences between youth with different household incomes in the types of job they hold or the hours they work. An exception to the pattern is that youth from families with the highest incomes are less likely than youth from families with the lowest incomes to work in maintenance jobs (19% vs. 29%, $p < .05$).

**Exhibit 5-9
EMPLOYMENT RATES OF YOUTH WITH DISABILITIES,
BY HOUSEHOLD INCOME AND RACE/ETHNICITY**

	Income			Race/Ethnicity		
	\$25,000 or Less	\$25,001 to \$50,000	More than \$50,000	White	African American	Hispanic
Percentage holding regular paid jobs in past year:						
At any time	42.0 (2.6)	60.1 (3.0)	63.8 (2.9)	62.5 (2.0)	41.6 (3.4)	36.1 (4.3)
During both the summer and school year	20.6 (2.1)	37.7 (2.9)	41.2 (3.0)	39.5 (2.0)	23.1 (2.9)	14.6 (3.2)
Percentage currently holding regular paid jobs	11.8 (1.7)	24.8 (2.6)	30.3 (2.8)	27.8 (1.8)	13.6 (2.4)	9.8 (2.7)
Percentage earning the minimum wage or more	41.2 (5.0)	47.3 (4.9)	56.6 (4.4)	53.7 (3.1)	38.6 (6.8)	40.5 (9.3)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Race/Ethnicity. Race/ethnicity is associated with differences in the likelihood that youth with disabilities are employed and, to some extent, their wages (Exhibit 5-9), as is found in the general population of youth (Gardecki, 2001). White youth are more likely to be employed in a given year (62%) than African American (42%) or Hispanic youth (36%, $p < .001$). They also are more likely to work during both the summer and the school year (40% vs. 23% and 15%, $p < .001$), and they are twice as likely as African American youth and almost three times as likely as Hispanic youth to be employed currently (28% vs. 14% and 10%, $p < .001$).

Not only are African American youth less likely than their white counterparts to be employed, when employed, they are less likely to earn high wages; significantly fewer earn the minimum wage or more (39% vs. 54%, $p < .05$). The lower likelihood of earning the minimum wage or more among African American youth with disabilities is evident in spite of the fact that there are no significant differences between racial/ethnic groups in the types of job youth hold. Hours worked also are similar across groups.

Summary

Almost 60% of youth with disabilities are employed during a 1-year period. Approximately 15% hold work-study jobs, approximately half of which are in food service, maintenance, or clerical positions. Work-study jobs are a particularly common source of work for youth with mental retardation, autism, multiple disabilities, or deaf-blindness.

During a 1-year period, 54% of youth with disabilities work at one or more jobs that are not associated with school, with more than 20% of them working on any given date. The 1-year employment rate is very similar to that of same-aged youth in the general population. Youth with learning disabilities, emotional disturbances, or other health impairments are the most likely to work at regular jobs, and youth with autism, multiple disabilities, or deaf-blindness are the least likely. Older youth, boys, youth from families with higher incomes, and white youth are the most likely to work, as is true for youth in the general population.

Overall, approximately 60% of employed youth work in maintenance, personal-care, or food service jobs. Maintenance jobs are most common for youth with mental retardation, emotional disturbances, or other health impairments, whereas personal-care jobs are most common for youth with hearing or visual impairments. As with the general population, the types of job held differs by gender and age. Girls are more likely than boys to work in personal care jobs, including babysitting, whereas boys are more likely than girls to work in maintenance jobs (many of which are lawn mowing or gardening). With age, the percentages of youth working in both of these informal types of job decreases, and employment in food service, trades, and clerical jobs increases.

During the school year, more than half of youth in every disability category work up to 8 hours per week. However, by age 16, approximately one-quarter of youth work more than 16 hours per week. During the summer, youth tend to work more hours, particularly older teens.

Half of youth with disabilities earn the minimum wage of \$5.15 or more. Age, gender, household income, and race/ethnicity are associated with youth's earnings. At ages 13 and 14, about one-third of youth earn the minimum wage or more; at 17, almost two-thirds do. In addition, boys tend to earn more than girls, youth from higher-income households earn more than those from lower-income households, and white youth earn more than African American youth.

Holding a job is an important marker for youth as they begin to take on adult roles and responsibilities—an accomplishment achieved by about as many high-school-age youth with disabilities as youth in the general population. Longitudinal analyses from NLTS2 will explore the relationships between work during their secondary school years and both postschool employment and achievements in other domains. Future analyses also will identify secondary school factors that contribute to a higher likelihood of employment, both during school and in the postschool years.

6. RELATIONSHIPS BETWEEN ACTIVITIES OUTSIDE OF CLASS AND SOCIAL ADJUSTMENT

By Tom W. Cadwallader and Mary Wagner

Recent longitudinal research indicates that most children with disabilities have active lives outside the classroom.¹ Most of them interact with friends and take part in organized extracurricular activities of various kinds, and more than half work. Analyses also suggest that active individual friendships and participation in organized activities outside of school, including employment, are related. Activities of both kinds can vary for youth who differ in their primary disabilities, age, gender, household income, and race/ethnicity.

What other characteristics distinguish youth who are active outside the classroom? In particular, do active youth demonstrate greater social skills? It is reasonable to expect a connection between participation in social interactions or organized activities and social competence, but the direction of that relationship is not at all clear. Youth who engage in positive exchanges with others individually or in groups may reap benefits from the experience in terms of their social adjustment. However, it is equally reasonable to assume that youth with greater social competence choose active lives outside the classroom to have an arena in which to exercise that competence. Regardless of whether socially competent youth choose active lives or whether interpersonal interactions improve their social skills or both, understanding the relationship between nonacademic activities and social adjustment can help illuminate both concepts.

To help explore these concepts, parents of NLTS2 students were asked to rate their adolescent children on a variety of items related to their social competence. Parents responded to 11 questions² representing three areas of social ability:

- **Assertion**—youth's ability and willingness to become involved in social activities (e.g., joins groups without being told).
- **Self-control**—youth's ability to cope with frustration and to deal with conflict (e.g., ends disagreements calmly).
- **Cooperation**—youth's ability to cooperate and stay on task (e.g., cooperates with family members without being asked to do so).

Responses were used to create scales of each kind of social skill. In addition, general scale of social ability was created by summing parents' ratings on the 11 items. Ratings are categorized as high (greater than one standard deviation above the mean), medium (within one standard deviation of the mean), and low (more than one standard deviation below the mean).

¹ Analyses similar to those reported in this chapter were conducted for elementary and middle school students with disabilities as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Cadwallader and Wagner (2002b).

² Students' social skills were assessed by using questions taken from the Social Skills Rating System, Parent Form (Gresham & Elliot, 1990). See Cameto, Cadwallader, and Wagner (2003) for a more detailed discussion of these social skills.

In addition to these social skills scales, two other factors that may reflect the ability of youth to abide by norms that are important in school and in their communities are considered: parents' reports of whether youth ever had been suspended or expelled from school and whether they ever had been arrested. Scale scores and incidences of suspension/expulsion and arrest are analyzed in relation to the measures of individual friendship interactions presented in Chapter 3, to the forms of extracurricular participation presented in Chapter 4, and to youth's employment, discussed in Chapter 5.

Interactions with Friends and Social Skills

There is a consistent, robust, and positive relationship between ratings of the overall social skills of youth and their frequency of interaction with friends (Exhibit 6-1). For example, youth who visit with friends frequently are significantly more likely to be rated by parents as high in their overall social skills (27%) than are youth who never see friends outside of class (11%, $p < .001$). The inverse also is true—frequent visitors with friends are much less likely to be rated as having low social skills (13%) than youth who never see friends (40%, $p < .001$). A very similar relationship is apparent between social skills and both the frequency of receiving phone calls from friends and being invited by other youth to social activities—those who are more

Exhibit 6-1
RELATIONSHIPS BETWEEN FRIENDSHIP INTERACTIONS AND SOCIAL SKILLS

	Visit with Friends		Receive Phone Calls from Friends		Are Invited to Social Activities		Use E-mail or Chat Room		Do Any of These	
	Never	Frequently	Rarely	Frequently	No	Yes	No	Yes	No	Yes
Percentage with:										
Social skills rated:										
High	10.7 (3.0)	27.1 (2.7)	12.8 (2.0)	26.6 (1.7)	9.1 (2.2)	25.5 (1.5)	23.2 (4.9)	24.6 (1.7)	2.2 (1.9)	23.7 (1.4)
Low	39.6 (4.8)	12.7 (2.0)	31.2 (2.7)	13.4 (1.3)	36.1 (3.7)	14.7 (1.2)	17.5 (4.4)	16.5 (1.7)	52.7 (6.6)	16.9 (1.2)
Assertion skills rated:										
High	7.4 (2.5)	42.8 (3.0)	10.9 (1.8)	34.6 (1.8)	8.7 (2.1)	32.3 (1.6)	21.6 (4.7)	31.5 (1.8)	1.3 (1.4)	29.6 (1.5)
Low	62.2 (4.7)	8.2 (1.7)	42.7 (2.9)	12.8 (1.3)	48.3 (3.7)	15.1 (1.3)	22.1 (4.8)	17.0 (1.5)	85.8 (4.4)	18.2 (1.3)
Self-control skills rated:										
High	16.5 (3.6)	13.7 (2.1)	16.6 (2.2)	16.2 (1.4)	10.6 (2.3)	16.9 (1.3)	12.6 (3.8)	16.7 (1.5)	17.4 (5.0)	15.9 (1.2)
Low	25.8 (4.2)	22.9 (2.6)	22.2 (2.4)	21.9 (1.6)	28.1 (3.4)	20.9 (1.4)	22.4 (4.8)	21.7 (1.6)	27.4 (5.9)	22.0 (1.3)
Cooperation skills rated:										
High	31.7 (4.5)	30.5 (2.8)	35.1 (2.8)	35.8 (1.8)	33.1 (3.5)	36.2 (1.7)	33.5 (5.4)	34.9 (1.9)	32.6 (6.0)	35.8 (1.6)
Low	44.9 (4.8)	43.6 (3.0)	42.3 (2.9)	40.2 (1.9)	45.9 (3.7)	39.8 (1.7)	48.1 (5.7)	39.7 (1.9)	48.6 (6.4)	40.4 (1.6)
Previous suspension or expulsion from school	27.3 (4.3)	40.0 (3.0)	26.3 (2.6)	34.3 (1.8)	33.4 (3.6)	32.1 (1.7)	42.6 (5.7)	31.6 (1.8)	20.1 (5.1)	32.9 (1.5)
Previous arrest	10.7 (3.0)	20.4 (2.5)	9.2 (1.7)	13.6 (1.3)	13.6 (2.6)	12.3 (1.2)	14.7 (4.1)	12.6 (1.3)	4.2 (2.5)	13.0 (1.1)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

socially active in these ways also are more likely to have high overall social skills. However, the relationship is not as apparent among youth who have computers and use them for communication. Perhaps the “virtual” nature of these electronic relationships makes engaging in them less subject to variation in social skills, or, conversely, participation in them contributes less to developing such skills among participating youth.

Despite these generally strong relationships, it is important to note that some youth with at least some friendship interactions are rated by parents as having low social skills (17%). Thus, low skills do not prevent all youth with disabilities from interacting with peers outside of class, although the quality of their interactions is unknown.

When the individual dimensions of social skills are considered, it is apparent that the relationship between friendship interactions and social skills results entirely from the strong association between assertion skills and friendship interactions. There are no significant differences in ratings of self-control or cooperation skills for youth who differ in any of the forms of friendship interaction. In contrast, 43% of those who see friends frequently have high assertion skills, compared with 7% of those who never see friends outside of class ($p < .001$). Significant differences in assertion skill ratings are noted for each kind of friendship interaction, including use of computers for communication (32% of users have high assertion skills vs. 22% of nonusers, $p < .05$). This pattern suggests that assertion skills may well be a key component of the willingness and ability of youth to initiate friendship interactions. It also is possible that by engaging in those interactions, youth learn assertion skills, although in the absence of direct instruction in such skills, this seems to be a less plausible explanation for the relationship between friendship interactions and assertion.

Although youth who are involved actively with friends in some ways have higher skills of some kinds, apparently not all friends are “good” friends. Being suspended or expelled from school or arrested is positively related to some forms of more active involvement with friends. For example, youth who frequently visit with friends or who frequently receive phone calls from friends are significantly more likely to have been suspended or expelled or arrested, according to parents ($p < .05$ for all comparisons), than youth who are less involved with friends in these ways. Two exceptions to this general pattern relate to receiving invitations to others’ social activities and participating in e-mail or chat room conversations—youth who are active in these ways are no more or less likely to have been suspended or expelled from school or arrested than youth who are not.

These findings are in line with research that suggests that aggressive peers tend to cluster together and that antisocial behavior may be a basis for peer affiliations (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Giordano, Cernkovich, & Pugh, 1986). In fact, extensive research demonstrates that misbehaving and aggressive youth have the same kinds of social attachments as their more prosocial peers (Cairns & Cairns, 1994; Farmer, Stuart, Lorch, & Fields, 1993; Rodkin, Farmer, Pearl, & Van Acker, 2000). However, the literature on friendship tends to emphasize the importance of having friends and to ignore important questions of friendship quality. Some friends distract from academic activities, challenge authority, and encourage bad conduct. Street gangs represent the extreme on this dimension (Cadwallader, 2000/2001).

Organized Activities outside of Class and Social Skills

Because earlier analyses revealed a positive correlation between the frequency of friendship interactions and participation in extracurricular activities, one would expect the pattern of relationships between extracurricular activities and social skills to mirror those between friendship interactions and social skills—generally higher social skills reported for youth who participate in work and extracurricular activities. This pattern is confirmed (Exhibit 6-2). Youth who work or participate in extracurricular activities are rated by their parents as having better overall social skills than those who do not participate, regardless of the type of activity. Parents rate between 25% and 29% of youth who participate in the various extracurricular activities as high on the overall measure of social ability, compared with 12% to 21% of nonparticipants ($p < .05$ to $.001$). Similar differences are found between participants and nonparticipants regarding assertion skills.

However, the caveat mentioned above applies here, as well; these relationships do not confirm the direction of influence. Extracurricular involvement may result in improved social skills, improved social skills may lead to greater extracurricular involvement, there may be a

Exhibit 6-2
RELATIONSHIP BETWEEN PARTICIPATION IN ACTIVITIES OUTSIDE OF CLASS AND SOCIAL SKILLS

	Lessons or Classes		School-Sponsored Group		Community-Sponsored Group		Volunteer Activity		Paid Work		Any of These	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Percentage with:												
Overall social skills rated:												
High	21.1 (1.5)	29.0 (2.9)	18.8 (1.7)	28.0 (2.2)	17.5 (1.7)	28.6 (2.1)	18.3 (1.6)	29.9 (2.3)	19.0 (1.8)	26.6 (2.0)	12.0 (2.7)	24.7 (1.5)
Low	18.9 (1.4)	14.6 (2.3)	22.9 (1.8)	11.7 (1.6)	21.7 (1.8)	13.9 (1.6)	20.5 (1.6)	14.5 (1.8)	21.3 (1.8)	14.9 (1.6)	31.0 (3.8)	15.8 (1.3)
Assertion skills rated:												
High	27.0 (1.6)	34.8 (3.1)	22.0 (1.8)	36.5 (2.3)	21.1 (1.8)	36.8 (2.2)	24.2 (1.7)	35.3 (2.4)	20.6 (1.8)	35.8 (2.2)	12.2 (2.7)	31.4 (1.6)
Low	21.3 (1.5)	15.7 (2.3)	26.1 (1.9)	12.8 (1.6)	25.3 (1.9)	14.2 (1.6)	22.9 (1.7)	15.7 (1.8)	27.5 (2.0)	13.8 (1.6)	39.2 (4.0)	16.9 (1.3)
Self-control skills rated:												
High	14.4 (1.3)	21.3 (2.6)	14.8 (1.5)	17.9 (1.9)	14.6 (1.5)	17.4 (1.7)	13.7 (1.4)	19.4 (2.0)	14.8 (1.6)	17.6 (1.8)	13.2 (2.8)	16.5 (1.3)
Low	23.1 (1.5)	19.6 (2.6)	26.0 (1.9)	17.6 (1.9)	26.0 (1.9)	18.6 (1.8)	23.7 (1.7)	20.7 (2.1)	23.6 (1.9)	21.3 (1.9)	27.5 (3.6)	21.5 (1.4)
Cooperation skills rated:												
High	34.6 (1.7)	38.0 (3.1)	32.0 (2.0)	39.4 (2.4)	34.9 (2.1)	36.0 (2.2)	33.4 (1.9)	37.5 (2.5)	35.8 (2.1)	34.6 (2.2)	29.4 (3.7)	36.4 (1.7)
Low	41.9 (1.8)	37.8 (3.1)	43.9 (2.1)	37.2 (2.4)	41.7 (2.1)	40.0 (2.3)	43.2 (2.0)	37.5 (2.5)	40.8 (2.2)	41.1 (2.3)	45.2 (4.0)	40.3 (1.7)
Previous suspension/expulsion from school	34.3 (1.7)	27.2 (2.9)	36.3 (2.1)	27.8 (2.2)	36.5 (2.1)	28.8 (2.1)	33.5 (1.9)	31.7 (2.4)	29.7 (2.0)	35.4 (2.2)	27.3 (3.6)	33.5 (1.6)
Previous arrest	13.0 (1.2)	12.5 (2.2)	14.3 (1.5)	11.0 (1.5)	14.2 (1.5)	11.7 (1.5)	12.5 (1.4)	13.8 (1.8)	10.9 (1.4)	14.6 (1.6)	11.5 (2.6)	13.2 (1.2)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

bidirectional effect, or there may be some other explanation for the relationships. For example, the positive connection between extracurricular involvement and social skills may reflect differences in primary disability classification between participants and nonparticipants. Youth with severe emotional disorders, mental retardation, or autism, for example, receive lower ratings from their parents for overall social skills and congregate on the low side of the self-control and cooperation scales (Cameto, Cadwallader, & Wagner, 2003). These same youth are least likely to be involved in extracurricular activities.

There is a consistent relationship between having been suspended or expelled from school and participation in lessons or classes or in school- or community-sponsored group activities, with participants being significantly less likely than nonparticipants to have been suspended or expelled ($p < .05$ and $p < .01$). This is in contrast to the relationship between suspensions/expulsions and friendship interactions reported above, which depicts those who are actively involved with friends as more likely to have these negative outcomes. There is no significant relationship between suspension/expulsions or arrests and volunteer activities, working, or participating in any of these extracurricular pursuits.

Summary

There is a strong positive relationship between parents' ratings of their adolescent children's social skills and both their friendship interactions and participation in extracurricular activities, including jobs. More active youth generally are reported to be more socially skilled.

Assertion skills are most strongly linked to friendship interactions; individual friendships seem less contingent on having good self-control or cooperation skills. However, participation in extracurricular activities in some forms, which involve interactions with groups of youth or other adults, relates to all three kinds of social skill, affirming the greater complexity of interaction of groups relative to individual friendship relationships. In addition, youth who participate in group activities are less likely to have been suspended, expelled, or arrested than nonparticipants. However, the opposite relationship occurs regarding interactions with individual friends, suggesting that individuals in a relationship may tolerate or even encourage the kinds of behavior that result in suspensions, expulsions, and arrests more than peer groups that are organized around prosocial kinds of activities.

7. LIFE OUTSIDE OF SCHOOL

By Mary Wagner

A look at youth with disabilities ages 13 through 17 and their activities in their nonschool hours reveals youth involved in a wide variety of activities both at home—listening to music, watching television, using a computer, doing homework, talking on the phone with friends—and outside the home—getting together with friends, participating in sports, taking part in organized groups, working.¹ Thus, the majority of youth with disabilities appear to be “typical teens” outside of school in many ways.

Key themes from the analyses documented in this report are noted below.

Active Youth

More than 90% of youth see friends outside of school at least weekly, and almost as many are invited by other youth to their social activities. About three-fourths participate in extracurricular activities, including lessons or classes outside of school, various groups sponsored by the school or community organizations, or volunteer activities. Those who are active with individual personal friends also are more likely to be involved in extracurricular activities. However, because rates of these kinds of extracurricular activity fall somewhat short of those of the general student population, benefits associated with such activities accrue to youth with disabilities less than to their nondisabled peers.

An exception is paid employment. More than half of youth with disabilities have paid jobs in a given year, and almost one-fourth earn at least \$6.50 per hour—rates of employment and earnings that are virtually the same as for youth in the general population. Most employed youth with disabilities work during both the school year and in the summer, although the average number of hours they work per week is higher in the summer than the school year. Among younger teens with disabilities, informal work in personal care (e.g., babysitting) or maintenance (e.g., lawn mowing) dominates, but among 16- and 17-year-olds, many of these freelance jobs give way to regular paid employment.

Social Skills: Important, but Not Limiting

Not surprisingly, there is an association between the social skills and the social activities of youth with disabilities. For most kinds of friendship interaction and extracurricular activity, including employment, a larger proportion of youth with high social skills are found among active youth, whereas a larger proportion of less socially skilled youth are found among those who are less active. However, this is not a defining relationship. Youth with low social skills still are found among those with very active friendships and among participants in all kinds of extracurricular activities. Limited social skills may challenge youth in interacting with friends and in extracurricular pursuits, but do not prevent them from doing so.

¹ Analyses similar to those reported in this document were conducted for elementary and middle school students with disabilities as part of SEELS and were summarized in Wagner and Blackorby (2002).

Widespread Computer Literacy

Most teens with disabilities, like their nondisabled peers, appear to have acquired skills and familiarity with computer technology and use the technology in a variety of ways. The vast majority of youth with disabilities are reported by parents to know how to use a computer for educational purposes, and more than 80% do so. Almost three-fourths of youth have a computer at home, and computer use is reported by parents to take “most” of the free time of more than one-third of youth. One in six youth use a computer at least daily for e-mail or other electronic communication. This high level of computer literacy could provide a foundation for developing a variety of career interests or employment opportunities in the future.

Possible Causes for Concern

These findings depict an overall picture of youth actively engaged at school and in their communities, using their nonschool hours for enrichment, recreation, social activities, and employment. Yet, despite this positive general view, there are some causes for concern.

At the broadest level, we must recognize that the information reported here is provided by parents. Their perspective on what is happening with youth at home and in their social and extracurricular pursuits may be their best assessment of actual activities, but it also may reflect parents’ hopes or desires for their adolescent children. Thus, it may be wise to interpret the positive picture painted for the large majority of youth with some caution.

In addition, a minority of youth appear not to be experiencing the positive supports and activities that are reported for most. For example, more than one in four students participate in no organized extracurricular activities, and 2% have no interactions with friends of the kinds explored in NLTS2. Further, youth with different disability and demographic characteristics vary widely in the extent to which the generally positive picture characterizes them. Important variations for particular subgroups of youth are noted below.

Differential Effects of Disability

Across the disability categories, students demonstrate differences in some of the activities that fill their nonschool hours but are quite similar in others. Watching television and videos, participating in sports or other physical or outdoor activities, and using a computer are the most common activities of youth in their free time, regardless of disability category. Large majorities of youth in all disability categories also are involved with friends. They get together outside of class with friends at least weekly and are invited to take part in other youth’s social activities. However, autism and multiple disabilities, including deaf-blindness, are disabilities that appear to present significant obstacles to these kinds of interaction. Overall, only 2% of youth with disabilities are reported by parents not to have any of the kinds of friendship interaction explored in NLTS2, but this rate increases to between 15% and 28% of youth with autism, multiple disabilities, or deaf-blindness.

The frequency with which youth interact with friends suggests that these kinds of individual relationships may be less affected by variations in disability than the more complex interactions required to take part in extracurricular activities. For example, youth participate in lessons or enrichment classes outside of school at fairly uniform rates, regardless of disability. Many of

these may be individual lessons or classes in which the primary interaction is with the teacher. However, there is much wider variation in the extent to which youth take part in school-sponsored groups. These include such groups as sports teams and performing groups, in which interactions with a number of peers probably are expected. Youth with mental retardation, multiple disabilities, deaf-blindness, autism, or emotional disturbances are less likely than others to take part in these group activities. Variations in employment generally mirror those of participation in extracurricular groups.

Among youth who do participate in extracurricular groups, disability differences may affect the kinds of groups that are attractive or open to them. For example, youth with visual or orthopedic impairments are among the least likely to play on sports teams; still, about one-third of group participants with those kinds of disability do so. Some other kinds of groups, such as religious groups, seem to be fairly uniformly accessible to youth, regardless of the nature of their primary disability. These findings suggest the natural drive of teens with all kinds of disability to live like other teens—to have and be friends, pursue a variety of activities in their free time, join groups that interest them, and earn money.

Shifting Uses of Time with Age

The personal preferences and aptitudes of youth can be expected to change as they age. Not surprisingly, therefore, there are important age differences in some of the kinds of activity that occur in youth's nonschool hours.

Younger and older students are equally likely to spend their free time at home watching television or videos, listening to music, or using a computer. Similarly, there are no important differences in the frequency with which older and younger youth interact with friends, but the forms of interaction differ. Telephone calls between friends and using a computer for communication are more common among older teens. However, it is in their activities outside the house that the most notable differences occur.

Older youth are less likely than younger students to spend a significant amount of their time playing sports or engaging in other kinds of outdoor or physical activities. Instead, an increasing amount of their time is spent working. Employment among youth with disabilities involves fewer than half of 13- and 14-year-olds but two-thirds of 17-year-olds. Older teens also are much more likely to work more hours, and earnings reflect the greater experience of older youth.

These differences in age groups among youth with disabilities are quite similar to those documented for youth in the general population, affirming the developmental importance of age in understanding variations in their experiences, regardless of disability.

Gender Makes a Difference

Differences between adolescent boys and girls with disabilities emerge in areas in which social, cultural, or family values or norms may come into play, or in which personal preferences are exercised. For example, boys and girls do not differ in their overall level of involvement with friends, but boys are markedly more likely than girls to get together with them in person, whereas girls are more likely to interact with friends by phone. Similarly, boys and girls with disabilities are equally likely to be involved in extracurricular activities, but they choose different kinds of activity, reflecting their aptitudes or social norms. Boys are much more likely to be

reported by parents as having a particular aptitude for athletics and to be involved with sports teams as their most common extracurricular activity. They also are more likely than girls to be reported to spend a significant amount of their time playing sports or engaging in other physical or outdoor activities, through which they may learn how to cooperate in teams or maintain physical fitness. In contrast, parents of girls with disabilities report significantly more often than those of boys that their daughters have a particular aptitude for the performing arts; consistent with this pattern, taking lessons and participating in performing groups are significantly more common extracurricular activities for girls with disabilities than for boys. Girls also are more likely to spend significant amounts of their free time with family members, talking on the phone, doing hobbies or reading, or listening to music. These kinds of difference mirror those found in the general student population, confirming that personal aptitudes and preferences can be important influences on choices of activities for all youth.

It is possible, however, that gender differences in the employment domain are less reflective of personal preferences than of social norms. Girls are more likely than boys to engage in informal jobs, particularly personal care (much of which is babysitting)—jobs that may not build the same kinds of skills or employment “track record” as the regular jobs for licensed employers that are more common among boys. Even in work-study jobs, for which schools often give credit, girls are much more likely than boys to engage in personal-care activities. These differences in the kinds of early work experience of girls and boys may contribute to the pattern of substantially lower earnings for girls with disabilities than for their male peers, a pattern that has been shown to continue into adulthood for many girls (Wagner, 1992).

Money Matters

Not only are youth from low-income households a larger proportion of youth with disabilities than of youth in the general population,² their experiences in their nonschool hours are distinctly different from those of youth in wealthier households in important ways. Friendship interactions of many kinds are less common among youth from lower-income households. Although the majority of youth in all income groups interact with friends, those in the lowest-income group are more likely to be reported “never” to visit with friends outside of class and not to be invited by other youth to their social activities. Youth from lower-income households also are less likely to participate in extracurricular activities of every kind. Employment, too, is less likely to fill the nonschool hours of youth from poorer households, and when they work, they are likely to earn less.

Influences of Culture

Differences between racial/ethnic groups are apparent with regard to some factors explored in this report, but no consistent or pervasive pattern emerges. For example, white youth are the most active participants in organized extracurricular activities overall and in volunteer or community service activities in particular. Hispanic youth generally are less involved with individual friendships than other youth; they are significantly more likely than white students, for example, to be reported “never” to see friends outside of class. Employment also is significantly

² Please see Appendix B for a discussion of the individual and household characteristics of youth with disabilities.

more common for white youth than African American or Hispanic youth, and when white youth work, they tend to earn more.

Looking to the Future

These findings from NLTS2 provide the most comprehensive look yet at the activities of youth with disabilities in their nonschool hours. The important question remains, however: what differences does having these nonschool experiences make in helping youth succeed in school and in the transition to adult life? Future NLTS2 analyses will address this question in depth.

For example, research on youth in the general population suggests that participation in extracurricular activities can have a variety of benefits. However, it is unclear whether this also is true for youth with disabilities. NLTS2 analyses will explore that issue. Similarly, future analyses will examine the relationships between employment and school performance. The longitudinal nature of NLTS2 also provides data for examining such important issues as the development of the labor market experiences of youth with disabilities as they age and transition out of high school into early adulthood.

Results of these extensions of the analyses reported here will be forthcoming from NLTS2 over the next several years, as will important analyses of issues involving students' academic programs and performance in high school and postsecondary school.

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Appendix A

NLTS2 SAMPLING, DATA COLLECTION, AND ANALYSIS PROCEDURES: WAVE 1 PARENT INTERVIEW/SURVEY

This appendix describes several aspects of the NLTS2 methodology relevant to the Wave 1 parent interview/survey data reported here, including:

- Sampling local education agencies (LEAs), schools, and students
- Parent interview and survey procedures and response rates
- Weighting of the parent interview/survey data
- Estimation and use of standard errors
- Unweighted and weighted sample sizes
- Calculating statistical significance
- Measurement issues.

NLTS2 Sample Overview

The NLTS2 sample was constructed in two stages. A stratified random sample of 3,634 LEAs was selected from the universe of approximately 12,000 LEAs that serve students receiving special education in at least one grade from 7th through 12th grades. These LEAs and 77 state-supported special schools that served primarily students with hearing and vision impairments and multiple disabilities were invited to participate in the study, with the intention of recruiting 497 LEAs and as many special schools as possible from which to select the target sample of about 12,000 students. The target LEA sample was reached; 501 LEAs and 38 special schools agreed to participate and provided rosters of students receiving special education in the designated age range, from which the student sample was selected.

The roster of all students receiving special education from each LEA¹ and special school was stratified by disability category. Students then were selected randomly from each disability category. Sampling fractions were calculated that would produce enough students in each category so that, in the final study year, findings will generalize to most categories individually with an acceptable level of precision, accounting for attrition and for response rates to the parent/youth interview. A total of 11,276 students were selected and eligible to participate in the NLTS2 parent interview/survey sample.

Details of the LEA and students samples are provided below.

¹ LEAs were instructed to include on the roster any student for which they were administratively responsible, even if the student was not educated within the LEA (e.g., attended school sponsored by an education cooperative or was sent by the LEA to a private school). Despite these instructions, some LEAs may have underreported students served outside the LEA.

The NLTS2 LEA Sample

Defining the Universe of LEAs

The NLTS2 sample includes only LEAs that have teachers, students, administrators, and operating schools—that is, “operating LEAs.” It excludes such units as supervisory unions; Bureau of Indian Affairs schools; public and private agencies, such as correctional facilities; LEAs from U.S. territories; and LEAs with 10 or fewer students in the NLTS2 age range, which would be unlikely to have students with disabilities.

The public school universe data file maintained by Quality Education Data (QED, 1999) was used to construct the sampling frame because it had more recent information than the alternative list maintained by the National Center for Education Statistics. Correcting for errors and duplications resulted in a master list of 12,435 LEAs that met the selection criteria. These comprised the NLTS2 LEA sampling frame.

Stratification

The NLTS2 LEA sample was stratified to increase the precision of estimates, to ensure that low-frequency types of LEAs (e.g., large urban districts) were adequately represented in the sample, to improve comparisons with the findings of other research, and to make NLTS2 responsive to concerns voiced in policy debate (e.g., differential effects of federal policies in particular regions, LEAs of different sizes). Three stratifying variables were used:

Region. This variable captures essential political differences, as well as subtle differences in the organization of schools, the economic conditions under which they operate, and the character of public concerns. The regional classification variable selected was used by the Department of Commerce, the Bureau of Economic Analysis, and the National Assessment of Educational Progress (categories are Northeast, Southeast, Midwest, and West).

LEA size (student enrollment). LEAs vary considerably by size, the most useful available measure of which is student enrollment. A host of organizational and contextual variables are associated with size that exert considerable potential influence over the operations and effects of special education and related programs. In addition, total enrollment serves as an initial proxy for the number of students receiving special education served by an LEA. The QED database provides enrollment data from which LEAs were sorted into four categories serving approximately equal numbers of students:

- **Very large** (estimated² enrollment greater than 14,931 in grades 7 through 12)
- **Large** (estimated enrollment from 4,661 to 14,931 in grades 7 through 12)
- **Medium** (estimated enrollment from 1,568 to 4,660 in grades 7 through 12)
- **Small** (estimated enrollment from 11 to 1,621 in grades 7 through 12).

² Enrollment in grades 7 through 12 was estimated by dividing the total enrollment in all grade levels served by an LEA by the number of grade levels to estimate an enrollment per grade level. This was multiplied by 6 to estimate the enrollment in grades 7 through 12.

LEA/community wealth. As a measure of district wealth, the Orshansky index (the proportion of the student population living below the federal definition of poverty, Employment Policies Institute, 2002) is a well-accepted measure. The distribution of Orshansky index scores was organized into four categories of LEA/community wealth, each containing approximately 25% of the student population in grades 7 through 12:

- **High** (0% to 13% Orshansky)
- **Medium** (14% to 24% Orshansky)
- **Low** (25% to 43% Orshansky)
- **Very low** (more than 43% Orshansky).

The three variables generate a 64-cell grid into which the universe of LEAs was arrayed.

LEA Sample Size

On the basis of an analysis of LEAs' estimated enrollment across LEA size, and estimated sampling fractions for each disability category, 497 LEAs (and as many state-sponsored special schools as would participate) was considered sufficient to generate the student sample. Taking into account the rate at which LEAs were expected to refuse to participate, a sample of 3,635 LEAs was invited to participate, from which 497 participating LEAs might be recruited. A total of 501 LEAs actually provided students for the sample, 101% of the target number needed and 14% of those invited. Analyses of the region, size, and wealth of the LEA sample, both weighted and unweighted, confirmed that that the weighted LEA sample closely resembled the LEA universe with respect to those variables.

In addition to ensuring that the LEA sample matched the universe of LEAs on variables used in sampling, it was important to ascertain whether the stratified random sampling approach resulted in skewed distributions on relevant variables not included in the stratification scheme. Several analyses were conducted.

First, three variables from the QED database were chosen to compare the "fit" between the first-stage sample and the population: the LEA's racial/ethnic distribution of students, the proportion who attended college, and the urban/rural status of the LEA. This analysis revealed that the sample of LEAs somewhat underrepresenting African American students and college-bound students, and overrepresenting Hispanic students and LEAs in rural areas. Thus, in addition to accounting for stratification variables, LEA weights were calculated to achieve a distribution on the urbanicity and racial/ethnic distributions of students that matched the universe.

To determine whether the resulting weights, when applied to the participating NLTS2 LEAs, accurately represented the universe of LEAs serving the specified grade levels, data collected from the universe of LEAs by the U.S. Department of Education's Office of Civil Rights (OCR) and additional items from QED were compared for the weighted NLTS2 LEA sample and the universe. Finally, the NLTS2 participating LEAs and a sample of 1,000 LEAs that represented the universe of LEAs were surveyed to assess a variety of policies and practices known to vary among LEAs and to be relevant to secondary-school-age youth with disabilities. Analyses of

both the extant databases and the LEA survey data confirm that the weighted NLTS2 LEA sample accurately represents the universe of LEAs.

The NLTS2 Student Sample

Determining the size of the NLTS2 student sample took into account the duration of the study, desired levels of precision, and assumptions regarding attrition and response rates. Analyses determined that approximately three students would need to be sampled for each student who would have a parent/youth interview in Wave 5 of NLTS2 data collection.

The NLTS2 sample design called for findings to be generalizable to students receiving special education as a whole and for the 12 special education disability categories currently in use and reported in this document. Standard errors were to be no more than 3.6%, except for the low-incidence categories of traumatic brain injury and deaf-blindness. Thus, by sampling 1,250 students per disability category (with the two exceptions noted) in year 1, 402 students per category were expected to have a parent or youth interview in year 9. Assuming a 50% sampling efficiency (which is likely to be exceeded for most disability categories), 402 students would achieve a standard error of estimate of slightly less than 3.6%. All students with traumatic brain injury or with deaf-blindness in participating LEAs and special schools were selected. Students were disproportionately sampled by age to assure that there would be an adequate number of students who were age 24 or older at the conclusion of the study. Among the eligible students, 40.2% will be 24 or older as of the final interview.

LEAs and special schools were contacted to obtain their agreement to participate in the study and request rosters of students receiving special education who were ages 13 through 16 on December 1, 2000 and in at least 7th grade.³ Requests for rosters specified that they contain the names and addresses of students receiving special education under the jurisdiction of the LEA, the disability category of each student, and the students' birthdates or ages. Some LEAs would provide only identification numbers for students, along with the corresponding birthdates and disability categories. When students were sampled in these LEAs, identification numbers of selected students were provided to the LEA, along with materials to mail to their parents/guardians (without revealing their identity).

After estimating the number of students receiving special education in the NLTS2 age range, the appropriate fraction of students in each category was selected randomly from each LEA and special school. In cases in which more than one child in a family was included on a roster, only one was eligible to be selected. LEAs and special schools were notified of the students selected and contact information for their parents/guardians was requested.

Parent Interview/Survey

The data source for the findings reported here was parents/guardians of NLTS2 sample members, who were interviewed by telephone or surveyed by mail. The NLTS2 conceptual framework suggests that a youth's nonschool experiences, such as extracurricular activities and friendships; historical information, such as age when disability was first identified; household

³ Students who were designated as being in ungraded programs also were sampled if they met the age criteria.

characteristics, such as socioeconomic status; and a family’s level and type of involvement in school-related areas are crucial to student outcomes. Parents/guardians are the most knowledgeable about these aspects of students’ lives.

Matches of names, addresses, and telephone numbers of NLTS2 parents with existing national locator databases were conducted to maximize the completeness and accuracy of contact information and subsequent response rates. A student was required to have a working telephone number and an accurate address to be eligible for the parent interview sample.

Letters were sent to parents to notify them that their child had been selected for NLTS2 and that an interviewer would be attempting to contact them by telephone. The letter included a toll-free telephone number for parents to call to be interviewed if they did not have a telephone number where they could be reached reliably or if they wanted to make an appointment for the interview at a specific time.

Computer-assisted telephone interviewing (CATI) was used for parent interviews, which were conducted between from mid-May through late September 2001. Ninety-five percent of interviews were conducted in English and 5% in Spanish.

All parents who could not be reached by telephone were mailed a self-administered questionnaire in a survey period that extended from September through December 2001. The questionnaire contained a subset of key items from the telephone interview. Exhibit A-1 reports the responses to the telephone and mail surveys.

Exhibit A-1 RESPONSE RATES FOR NLTS2 PARENT/GUARDIAN TELEPHONE INTERVIEW AND MAIL SURVEY		
	<u>Number</u>	<u>Percentage</u>
Total eligible sample	11,276	100.0
Respondents		
Completed telephone interview	8,672	76.9
Partial telephone interview completed	300	2.7
Complete mail questionnaire	258	2.3
Total respondents	9230	81.9
Nonrespondents		
Refused	738	6.5
Language barrier	138	1.2
No response	1,170	10.4
Total nonrespondents	2,046	18.1

Overall, 91% of respondents reported that they were parents of sample members (biological, adoptive, or step), and 1% were foster parents. Six percent were relatives other than parents, 2% were nonrelative legal guardians, and fewer than 1% reported other relationships to sample members.

Weighting the Wave 1 Parent Data

The percentages and means reported in the data tables are estimates of the true values for the population of youth with disabilities in the NLTS2 age range. The estimates are calculated from responses of parents of NLTS2 sample members. The response for each sample member is weighted to represent the number of youth in his or her disability category in the kind of LEA (i.e., region, size, and wealth) or special school from which he or she was selected.

Exhibit A-2 illustrates the concept of sample weighting and its effect on percentages or means that are calculated for students with disabilities as a group. In this example, 10 students

are included in a sample, 1 from each of 10 disability groups, and each has a hypothetical value regarding whether that student participated in organized group activities outside of school (1 for yes, 0 for no). Six students participated in such activities, which would result in an unweighted value of 60% participating. However, this would not accurately represent the national population of students with disabilities because many more students are classified as having a learning disability than orthopedic or other health impairments, for example. Therefore, in calculating a population estimate, weights in the example are applied that correspond to the proportion of students in the population that are from each disability category (actual NLTS2 weights account for disability category and several aspects of the districts from which they were chosen). The sample weights for this example appear in column C. Using these weights, the weighted population estimate is 87%. The percentages in all NLTS2 tables are similarly weighted population estimates, whereas the sample sizes are the actual number of cases on which the weighted estimates are based (similar to the 10 cases in Exhibit A-2).

Exhibit A-2
EXAMPLE OF WEIGHTED PERCENTAGE CALCULATION

Disability Category	A Number in Sample	B Participated in Group Activities	C Example Weight for Category	D Weighted Value for Category
Learning disability	1	1	5.5	5.5
Speech/language impairment	1	1	2.2	2.2
Mental retardation	1	1	1.1	1.1
Emotional disturbance	1	0	.9	0
Hearing impairment	1	1	.2	.2
Visual impairment	1	1	.1	.1
Orthopedic impairment	1	0	.1	0
Other health impairment	1	1	.6	.6
Autism	1	0	.2	0
Multiple disabilities	1	0	.1	0
TOTAL	10	6	10	8.7
	Unweighted sample percentage = 60% (Column B total divided by Column A total)		Weighted population estimate = 87% (Column D total divided by Column C total)	

The students in LEAs and state schools with parent interview/survey data were weighted to represent the universe of students in LEAs and state schools using the following process:

- For each of the 64 LEA sampling cells, an LEA student sampling weight was computed. This weight is the ratio of the number of students in participating LEAs in that cell divided by the number of students in all LEAs in that cell in the universe of LEAs. The weight represents the number of students in the universe who are represented by each student in the participating LEAs. For example, if participating LEAs in a particular cell served 4,000 students and the universe of LEAs in the cell served 400,000 students, then the LEA student sampling weight would be 100.

- For each of the 64 LEA cells, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters of participating LEAs in a cell by the adjusted LEA student sampling weight for that cell. For example, if 350 students with learning disabilities were served by LEAs in a cell, and the LEA student sampling weight for that cell was 100 (that is, each student in the sample of participating LEAs in that cell represented 100 students in the universe), there would be an estimated 35,000 students with learning disabilities in that cell in the universe.
- For the state schools, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters by the inverse of the proportion of state schools that submitted rosters.
- The initial student sampling weights were adjusted by disability category so that the sum of the weights (that is, the initial student sampling weights multiplied by the number of students with completed interviews) was equal to the number of students in the geographical and wealth cells of each size strata. The adjustments were typically small and essentially served as a nonresponse adjustment. However, the adjustments could become substantial when there were relatively few interviewees (as occurred in the small and medium strata for the lowest-incidence disabilities) because in these cases, there might not be any interviewees in some cells, and it was necessary to adjust the weights of other interviewees to compensate. Two constraints were imposed on the adjustments: (1) within each size stratum, the cells weights could not vary from the average weight by more than a factor of 2, and (2) the average weight within each size strata could not be larger than 4 times the overall average weight. These constraints substantially increased the efficiency of the sample at the cost of introducing a small amount of weighting bias (discussed below).
- In a final step, the weights were adjusted so that they summed to the number of students in each disability category, as reported to OSEP by the states for the 2000-2001 school year (Office of Special Education Programs, 2001).

The imposition of constraints on the adjusted weights increased sampling efficiency at the cost of introducing a small amount of bias. The average efficiency increased from 51.7% to 67.4%; the largest increases in sampling efficiency occurred for youth with emotional disturbances (from 44.4% to 81.0%) and for those with multiple disabilities (from 32.1% to 56.8%). Biases introduced by the imposition of constraints on the student weights generally were very small. The largest bias in size distribution was for youth with visual impairments (decreasing from 17.1% in the smallest size stratum to 11.6%) and those with autism (decreasing from 21.3% in the smallest size stratum to 17.5%). All other changes in the size distribution were 1.5% or less, and the average absolute change was only 0.4%. The largest bias in wealth distribution was for those with multiple disabilities (from 22.2% in wealth stratum 3 to 16.6%, and from 18.3% in wealth stratum 4 to 22.0%). All other changes were 2.1% or less, and the average absolute change was only 0.6%. All biases in regional distribution were 2.1% or less, and the average absolute change was only 0.5%. Considering the increase in sampling efficiency, these biases are considered acceptable.

The reason for the reduction in the proportion of students represented in the cells mentioned above is that there were relatively few students with interview/survey data in those cells. For

example, small LEAs had only 21 students with visual impairments with data, requiring that they represent an estimated 1,701 students with visual impairments from small LEAs. The weighting program determined that the average weight required (i.e., 81.0) violated the constraints, and therefore reduced these weights to a more reasonable value (i.e., 56.2).

Estimating Standard Errors

Each estimate reported in the data tables is accompanied by a standard error. A standard error acknowledges that any population estimate that is calculated from a sample will only approximate the true value for the population. The true population value will fall within the range demarcated by the estimate, plus or minus the standard error 95% of the time. For example, if the cohort 2 estimate for youth's current employment rate is 29%, with a standard error of 1.8 (as reported in Exhibit 5-7), one can be 95% confident that the true current employment rate for the population is between 27.2% and 30.8%.

Because the NLTS2 sample is both stratified and clustered, calculating standard errors by formula is not straightforward. Standard errors for means and proportions were estimated using pseudo-replication, a procedure that is widely used by the U.S. Census Bureau and other federal agencies involved in fielding complex surveys. To that end, a set of weights was developed for each of 32 balanced half-replicate subsamples. Each half-replicate involved selecting half of the total set of LEAs that provided contact information using a partial factorial balanced design (resulting in about half of the LEAs being selected within each stratum) and then weighting that half to represent the entire universe. The half-replicates were used to estimate the variance of a sample mean by: 1) calculating the mean of the variable of interest on the full sample and each half-sample using the appropriate weights; 2) calculate the squares of the deviations of the half-sample estimate from the full sample estimate; and 3) adding the squared deviations and divide by (n-1) where n is the number of half-replicates.

Although the procedure of pseudo-replication is less unwieldy than development of formulas for calculating standard errors, it is not easily implemented using the Statistical Analysis System (SAS), the analysis program used for NLTS2, and it is computationally expensive. In the past, it was possible to develop straightforward estimates of standard errors using the effective sample size.

When respondents are independent and identically distributed, the effective sample size for a weighted sample of N respondents can be approximated as

$$N_{\text{eff}} = N \times (E^2[W] / (E^2[W] + V[W]))$$

where N_{eff} is the effective sample size, $E^2[W]$ is the square of the arithmetic average of the weights and $V[W]$ is the variance of the weights. For a variable X, the standard error of estimate can typically be approximated by $\sqrt{V[X]/N_{\text{eff}}}$, where $V[X]$ is the weighted variance of X.

NLTS2 respondents are not independent of each other because they are clustered in LEAs, and the intra-cluster correlation is not zero. However, the intra-cluster correlation traditionally has been quite small, so that the formula for the effective sample size shown above has worked

well. To be conservative, however, the initial estimate was multiplied by a “safety factor” that assures that the standard error of estimate is not underestimated.

To determine the adequacy of fit of the variance estimate based on the effective sample size and to estimate the required safety factor, 24 questions with 95 categorical and 2 continuous responses were selected. Standard errors of estimates were calculated for each response category and the mean response to each question for each disability group using both pseudo-replication and the formula involving effective sample size. A safety factor of 1.25 resulted in the effective sample size standard error estimate underestimating the pseudo-replicate standard error estimate for 92% of the categorical responses and 89% of the mean responses. Because the pseudo-replicate estimates of standard error are themselves estimates of the true standard error, and are therefore subject to sampling variability, this was considered an adequate margin of safety. All standard errors in Wave 1 are 3.0% or less, except for categories of deaf-blindness, traumatic brain injury, and visual impairments, where sample sizes are small. For these disability categories, the standard errors were at most 4.9%, 4.9%, and 3.5% for dichotomous variables.

Unweighted and Weighted Sample Sizes

As indicated above, standard errors accompany all estimates reported in the data tables. How close an estimate comes to a true population value is influenced by the size of the sample on which the estimate is based. Larger samples yield estimates with smaller standard errors, indicating that those estimates are closer to true population values than estimates with larger standard errors based on smaller samples.

The actual, or “unweighted,” sample sizes for each variable reported in the data tables are included in Appendix B. However, some readers may be interested in determining the number of youth in the nation represented by a particular estimate (e.g., if 29% of youth in cohort 2 were employed currently, how many youth in the country were employed?). A first step in determining these “weighted” sample sizes involves multiplying the percentage estimate by the actual number of youth in the nation represented by that estimate (see example below). However, 95% of the time, the true population value is likely to diverge from that estimate by as much as the amount of the standard error. Therefore, it is more appropriate to use the standard error to calculate a range in the number of youth represented by an estimate, rather than relying on the single value resulting from multiplying the estimate by the size of the population it represents.

Consider the example depicted in Exhibit A-3. NLTS2 findings indicate that 25.1% of youth with learning disabilities are currently employed (see Exhibit 4-6). The standard error accompanying that estimate is 2.1, indicating that the true current employment rate for the population is likely to fall between 23% and 27.2%. There are 1,130,539 youth with learning disabilities in the NLTS2 age range. Multiplying the percentages by this population size yields a single-point estimate of an estimate of 283,765 and a range of 260,024 to 307,507, within which the actual population size will fall, with 95% confidence.

Exhibit A-3
EXAMPLE OF CALCULATING WEIGHTED SAMPLE SIZES

A	B	C	D	E	F
Percentage Estimate	Standard Error	Range around Estimate (Column A Plus or Minus Column B)	Population Size	Single-point Weighted Population Affected (Column A x Column D)	Range in Weighted Population Affected (Column C x Column D)
25.1	2.1	23.0 to 27.2	1,130,539	283,765	260,024 to 307,507

Because percentage estimates are provided not only for the full sample of youth with disabilities, but also for youth who differ in primary disability category, gender, household income, and race/ethnicity, readers must have the actual population size for each of these subgroups to calculate weighted sample sizes for some estimates. These population sizes are presented in Exhibit A-4.

Calculating Significance Levels

In general, references in the text of the report to differences between groups highlight only differences that are statistically significant with at least 95% confidence, (denoted as $p < .05$). Beyond the differences highlighted in the text, readers may want to compare percentages or means for specific subgroups to determine, for example, whether the difference in the percentage of students who are male between students with learning disabilities and those with hearing impairments is greater than would be expected to occur by chance. To calculate whether the difference between percentages is statistically significant, the squared difference between the two percentages of interest is divided by the sum of the two squared standard errors. If this product is larger than 3.84, the difference is statistically significant at the .05 level—i.e., it would occur by chance fewer than 5 times in 100. Presented as a formula, a difference in percentages is statistically significant at the .05 level if:

$$\frac{(P_1 - P_2)^2}{SE_1^2 + SE_2^2} > 3.84$$

where P_1 and SE_1 are the first percentage and its standard error and P_2 and SE_2 are the second percentage and the standard error. If the product of this calculation is 6.63 to 10.79, the significance level is .01, products of 10.8 or greater are significant at the .001 level.

Exhibit A-4
POPULATION SIZES OF GROUPS REPRESENTED BY NLTS2

Groups	Number
All youth with disabilities	1,838,848
Disability category:	
Learning disability	1,130,539
Speech/language impairment	76,590
Mental retardation	213,552
Emotional disturbance	203,937
Hearing impairment	22,001
Visual impairment	8,013
Orthopedic impairment	21,006
Other health impairment	98,197
Autism	14,637
Traumatic brain injury	6,379
Multiple disabilities	34,865
Deaf-blindness	340
Gender	
Boys	747,286
Girls	377,487
Age	
13 or 14	350,580
15	265,451
16	299,593
17	214,916
Household income	
\$25,000 or less	414,116
\$25,000 to \$50,000	338,822
More than \$50,000	377,600
Race/ethnicity	
White	707,152
African American	233,796
Hispanic	159,406

Measurement and Reporting Issues

The chapters in this report include information on specific variables included in analyses. However, several general points about NLTS2 measures that are used repeatedly in analyses should be clear to readers as they consider the findings reported here.

Categorizing students by primary disability. Information about the nature of students' disabilities came from rosters of all students in the NLTS2 age range receiving special education services in the 2000-01 school year under the auspices of participating LEAs and state-supported

special schools. In data tables included in this report, students are assigned to a disability category on the basis of the primary disability designated by the student's school or district. Although there are federal guidelines in making category assignments (Exhibit A-5) criteria and methods for assigning students to categories vary from state and to state and even between districts within states, with the potential for substantial variation in the nature and severity of disabilities included in categories (see for example, MacMillan & Siperstein, 2002). Therefore, NLTS2 data should not be interpreted as describing students who truly had a particular disability, but rather as describing students who were categorized as having that primary disability by their school or district. Hence, descriptive data are nationally generalizable to youth in the NLTS2 age range who were classified as having a particular primary disability in the 2000-01 school year.

Exhibit A-5 DEFINITIONS OF DISABILITIES⁴

Autism: A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has a serious emotional disturbance as defined below.

Deafness: A hearing impairment so severe that the child cannot understand what is being said even with a hearing aid.

Deaf-Blindness: A combination of hearing and visual impairments causing such severe communication, developmental, and educational problems that the child cannot be accommodated in either a program specifically for the deaf or a program specifically for the blind.

Hearing impairment: An impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness as listed above.

Mental retardation: Significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance.

Multiple disabilities: A combination of impairments (such as mental retardation-blindness, or mental retardation-physical disabilities) that causes such severe educational problems that the child cannot be accommodated in a special education program solely for one of the impairments. The term does not include deaf-blindness.

Orthopedic impairment: A severe orthopedic impairment that adversely affects educational performance. The term includes impairments such as amputation, absence of a limb, cerebral palsy, poliomyelitis, and bone tuberculosis.

Other health impairment: Having limited strength, vitality, or alertness due to chronic or acute health problems such as a heart condition, rheumatic fever, asthma, hemophilia, and leukemia, which adversely affect educational performance.⁵

⁴ From ERIC Digests (1998).

⁵ OSEP guidelines indicate that "children with ADD, where ADD is a chronic or acute health problem resulting in limited alertness, may be considered disabled under Part B solely on the basis of this disorder under the 'other health impaired' category in situations where special education and related services are needed because of the ADD" (Davila, 1991).

Exhibit A-5
DEFINITIONS OF DISABILITIES (Concluded)

Emotional Disturbance:⁶ A condition exhibiting one or more of the following characteristics, displayed over a long period of time and to a marked degree that adversely affects a child's educational performance:

- An inability to learn that cannot be explained by intellectual, sensory, or health factors
- An inability to build or maintain satisfactory interpersonal relationships with peers or teachers
- Inappropriate types of behavior or feelings under normal circumstances
- A general pervasive mood of unhappiness or depression
- A tendency to develop physical symptoms or fears associated with personal or school problems.

This term includes schizophrenia, but does not include students who are socially maladjusted, unless they have a serious emotional disturbance.

Specific Learning Disability: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. This term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. This term does not include children who have learning problems that are primarily the result of visual, hearing, or motor disabilities; mental retardation; or environmental, cultural or economic disadvantage.

Speech or language impairment: A communication disorder such as stuttering, impaired articulation, language impairment, or a voice impairment that adversely affects a child's educational performance.

Traumatic brain injury: An acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma. As with autism, traumatic brain injury (TBI) was added as a separate category of disability in 1990 under P.L. 101-476.

Visual impairment, including blindness: An impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

The exception to reliance on school or district category assignment involves students with deaf-blindness. District variation in assigning students with both hearing and visual impairments to the category of deaf-blindness results in many students with those dual disabilities being assigned to other primary disability categories, most often hearing impairment, visual impairment, and multiple disabilities. Because of these classification differences, national estimates suggest that there were 3,196 students with deaf-blindness who were ages 12 to 17 in 1999 (National Technical Assistance Center, 1999), whereas the federal child count indicated that 681 were classified with deaf-blindness as their primary disability (Office of Special Education Programs, 2001).

⁶ P.L. 105-17, the Individuals with Disabilities Education Act Amendments of 1997, changed "serious emotional disturbance" to "emotional disturbance." The change has no substantive or legal significance. It is intended strictly to eliminate any negative connotation of the term "serious."

To describe the characteristics and experiences of the larger body of youth with deaf-blindness more accurately and precisely, students who were reported by parents or by schools or school districts⁷ as having both a hearing and a visual impairment were assigned to the deaf-blindness category for purposes of NLTS2 reporting, regardless of the primary disability category assigned by the school or school district. This increased the number of youth with deaf-blindness for whom parent data were collected from 24 who were categorized by their school or district as having deaf-blindness as a primary disability to 166. The number of students reassigned to the deaf-blindness category and their original designation of primary disability are indicated in Exhibit A-6.

Exhibit A-6	
ORIGINAL PRIMARY DISABILITY CATEGORY OF YOUTH ASSIGNED TO DEAF-BLINDNESS CATEGORY FOR NLTS2 REPORTING PURPOSES	
Original Primary Disability Category	Number
Deaf-blindness	24
Visual impairment	46
Hearing impairment	43
Multiple disabilities	31
Orthopedic impairment	7
Mental retardation	6
Traumatic brain injury	4
Other health impairment	3
Speech/language impairment	1
Autism	1
Total	166

Demographic characteristics. Findings in this report are provided for youth who differ in age, gender, household income, and race/ethnicity. For the large majority of youth, age, gender, and race/ethnicity were determined from data provided by students' schools or districts. For youth for whom information was not provided by schools or districts, data for these variables were taken from the parent interview/survey. Classifying the household income of students' households relied exclusively on information provided during the parent interview/survey.

Households in poverty. A dichotomous variable indicating that a student's household was in poverty was constructed using parents' reports of household income and household size and federal poverty thresholds for 2000 (U.S.

Census Bureau, 2001). These thresholds indicate the income level for specific sizes of households, below which the household is considered in poverty. Because NLTS2 respondents reported household income in categories (e.g., \$25,000 to \$29,999) rather than specific dollar amounts, estimates of poverty status were calculated by assigning each household to the mean value of the category of income reported by the parent and comparing that value to the household's size to determine poverty status.

Comparisons with the general population of students. In cases in which survey data for the general population of youth are publicly available (e.g., the National Household Education Survey), data have been abstracted from those datasets for youth who match in age the 13-through 17-year-olds included in NLTS2. However, many of the comparisons have been made using published data. For many of these comparisons, differences in samples (e.g., ages of students) or measurement (e.g., question wording on surveys) reduce the direct comparability of

⁷ Some special schools and school districts reported secondary disabilities for students. So, for example, a student with visual impairment as his or her primary disability category also could have been reported as having a hearing impairment as a secondary disability.

NLTS2 and general population data. Where these limitations affect the comparisons, they are pointed out in the text and the implications for the comparisons are noted.

Reporting statistics. Statistics are not reported for groups with fewer than 35 members. Statistics with a decimal of .5 are rounded to the nearest whole even number.

APPENDIX A REFERENCES

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Appendix B

DEMOGRAPHIC CHARACTERISTICS OF YOUTH WITH DISABILITIES AND THEIR HOUSEHOLDS

By Mary Wagner and Phyllis Levine

Understanding the characteristics of youth with disabilities is a crucial foundation for serving them well. Youth bring to their educational experiences a complex history and background that is shaped by demographic characteristics, such as age, gender, and ethnicity; by family background and circumstances, such as parents' education and household income; and by the nature of the students' disabilities. These factors help structure the involvement of youth at home, at school, and in the community, as well as the ways in which they, their parents, school staff, and other service personnel work together toward positive results for youth. Thus, individual and household characteristics are essential elements of the context for many major life experiences of youth. In important ways, an understanding of that context will inform how their experiences are interpreted, including the friendships, choices about free time, extracurricular activities, and work experiences that are reported here.

A brief summary of selected individual characteristics and household risk factors of youth with disabilities is presented below.¹

Individual Characteristics

For youth, age is a major determinant of development that influences their competence and independence. Yet, there is quite a bit of variation in maturation among teens, resulting in sizable differences in abilities and activities between youth of the same age. Gender is a defining human characteristic, and during adolescence, when young people are exploring their sexuality and gender roles, it can shape their experiences and choices in powerful ways. In addition, racial/ethnic and language background can be associated with rich cultural traditions, patterns of relationships within families and communities, and strong group identification, which can generate important differences in values, perspectives, expectations, and practices.

The importance of understanding the demographic makeup of the population of youth with disabilities is crucial in interpreting NLTS2 findings for the group as a whole and for youth with particular disability classifications. It also is a foundation for interpreting comparisons between youth with disabilities and those in the general population.

Below, the primary disability classifications among youth with disabilities are reported, and other traits that are important to their experiences are described. These are presented for youth with disabilities as a whole, compared with the general population when possible, and then described as they vary for youth with different primary disability classifications.

¹ A more detailed discussion of these characteristics can be found in Levine, Wagner, & Marder (2003) and Levine, Marder, Wagner, & Cardoso (2003).

Primary Disabilities of Youth

In the 2000-01 school year, students who received special education constituted 13% of all 13- to 16-year-olds who were enrolled in school.² Exhibit B-1 depicts the primary disability classifications assigned by schools to those students (Office of Special Education Programs, 2002). Overall, 62% of students receiving special education in this age group were classified as having a learning disability. Youth with mental retardation and emotional disturbances comprised 12% and 11% of students, respectively. Another 5% of youth were classified as having other health impairments, and 4% were identified as having speech impairments. The seven remaining disability categories each comprised 1% or less of the total child count or, taken together, about 5% of youth with disabilities. Thus, when findings are presented for youth with disabilities in this age group as a whole, they represent largely the experiences of those with learning disabilities.

Primary Disability Classification	Federal Child Count ³		NLTS2 Weighted Percentage
	Number	Percentage	
Specific learning disability	1,130,539	61.8	62.0
Speech/language impairment	76,590	4.2	4.0
Mental retardation	213,552	11.7	12.2
Emotional disturbance	203,937	11.2	11.4
Hearing impairment	22,001	1.2	1.3
Visual impairment	8,013	.4	.5
Orthopedic impairment	21,006	1.2	1.2
Other health impairment	98,197	5.4	4.6
Autism	14,637	.8	.7
Traumatic brain injury	6,379	.2	.3
Multiple disabilities	34,865	1.2	1.8
Deaf-blindness	340	<.1	.2
TOTAL	1,838,848	100.0	100.0

It is important to note that, although students receiving special education often are referred to as “students with disabilities,” the population of those with disabilities is larger than those receiving special education. For example, parents of 6% of the general population of children under age 18 report that their children have a visual impairment, 13% have a hearing impairment, and almost 16% report that their children have a speech impairment (National Center for Health Statistics, 2001). Yet, the number of students who receive special education

services primarily for those impairments combined constitute fewer than 3% of all students under age 18 (Office of Special Education Programs, 2002). This difference points up the fact that many children and youth experience some degree of disability that does not require specially designed instruction.

Exhibit B-1 demonstrates that the weighted distribution of NLTS2 youth very closely approximates that of youth with disabilities in the nation. Thus, weighted findings from NLTS2 provide an accurate picture of the characteristics, experiences, and achievements of youth with the range of disabilities highlighted in Exhibit B-1.

² General student enrollment is available by grade level rather than age. Grades 7 through 10 were used in calculating the general student enrollment (National Center for Education Statistics, 2001).

³ Data are for youth ages 13 to 16 who were receiving services under IDEA, Part B, in the 2000-01 school year in the 50 states and Puerto Rico (Office of Special Education Programs, 2002).

Age

Although the youth included in NLTS2 were ages 13 through 16 when they were selected, by the time data were collected from parents, some of the 13-year-olds were 14 and some 16-year-olds were 17. Therefore, findings are reported here for youth who are 13 through 17 (Exhibit B-2). The youngest and oldest cohorts, 13 and 17, are smaller than others because of the aging of youth between sample selection and interviews.

Each successive age cohort includes youth who were identified as eligible for special education services at that age, as well as those identified earlier who still are receiving special education. However, each age cohort does not include students who left school or special education at earlier ages. Thus, the disability mix shifts across the age cohorts because some disabilities are more prevalent among younger students whereas others do not emerge until later, and because school-leaving disproportionately affects some disability categories.

Youth in each disability category are distributed across the age groups in a similar pattern, with one exception. Almost half (45%) of youth with speech impairments are ages 13 or 14, making them significantly younger as a group than those in almost every other disability category ($p < .001$).

Exhibit B-2
YOUTH'S AGE ON JULY 1, 2001, BY DISABILITY CATEGORY

Age	All Youth	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
13 or 14	31.1 (1.4)	31.5 (2.2)	44.9 (2.4)	27.0 (2.2)	29.7 (2.3)	29.4 (2.6)	28.4 (3.1)	28.3 (2.5)	32.7 (2.2)	33.1 (2.5)	26.1 (4.0)	26.7 (2.3)	35.7 (4.7)
15	23.4 (1.3)	24.0 (2.1)	22.5 (2.0)	23.2 (2.1)	22.0 (2.1)	21.1 (2.3)	21.7 (2.9)	24.0 (2.3)	21.9 (1.9)	23.2 (2.2)	22.0 (3.8)	21.6 (2.2)	22.2 (4.0)
16	26.7 (1.4)	26.6 (2.1)	19.9 (1.9)	28.8 (2.2)	26.8 (2.2)	27.0 (2.5)	27.3 (3.1)	26.9 (2.4)	27.0 (2.1)	26.0 (2.3)	32.7 (4.3)	31.0 (2.4)	20.1 (3.9)
17	18.8 (1.2)	18.0 (1.8)	12.7 (1.6)	21.1 (2.0)	21.6 (2.1)	22.5 (2.3)	22.6 (2.9)	20.7 (2.2)	18.4 (1.8)	17.7 (2.0)	19.2 (3.6)	20.7 (2.1)	22.0 (4.0)

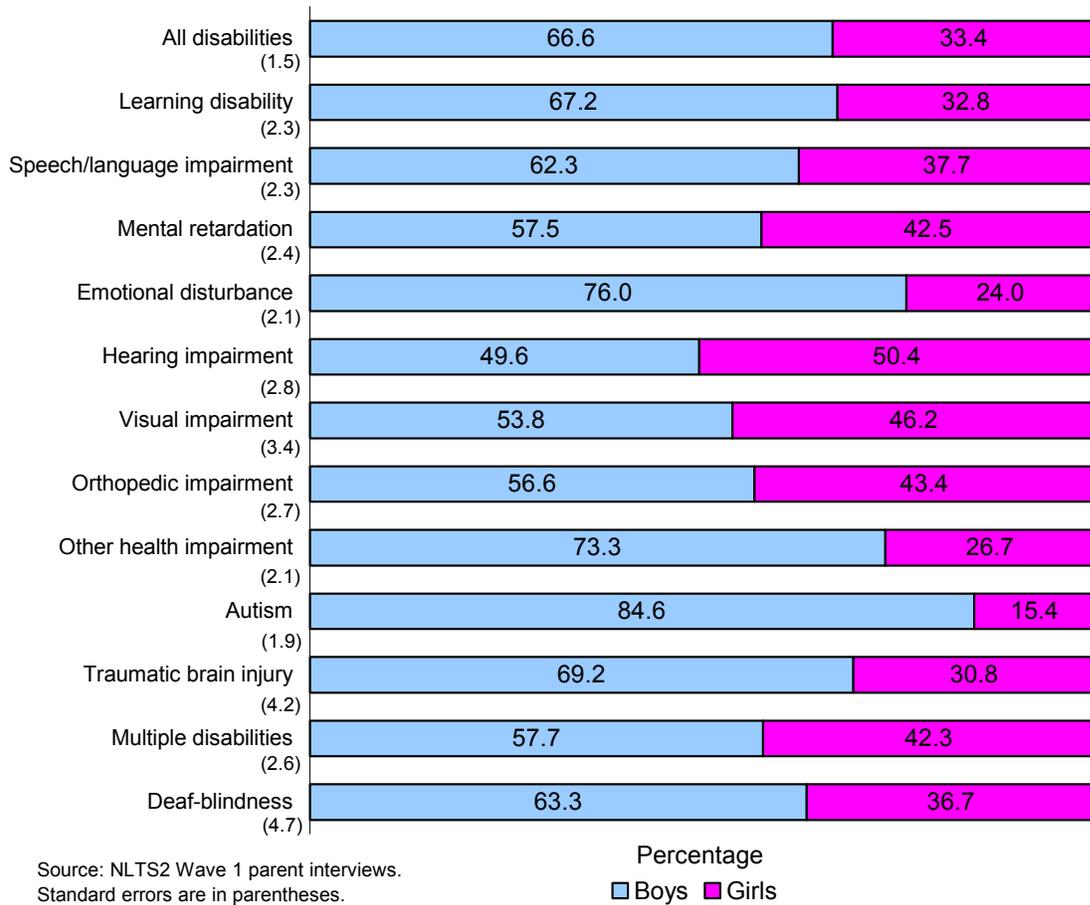
Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Gender

Two-thirds of youth with disabilities in the NLTS2 age range are boys (Exhibit B-3). The 2:1 ratio among children with disabilities has been found among infants and toddlers (Hebbeler et al., 2001), as well as among elementary and middle school students (Marder & Wagner, 2002).

Boys make up between 58% and 77% of youth in most disability categories, but among youth with autism, 85% are boys. In contrast, among youth with hearing or visual impairments, the percentages come close to the distribution of boys in the general population (50% and 54%). Thus, youth with different disability classifications can be expected to differ in their experiences and achievements because of their gender composition, as well as their disability differences.

Exhibit B-3
STUDENT GENDER, BY DISABILITY CATEGORY



Race/Ethnicity

Although white students make up approximately the same percentage of youth with disabilities as they do of the general population, differences are apparent between the two populations for youth of color, particularly African American youth (Exhibit B-4). They constitute almost 21% of youth with disabilities, compared with 17% of youth in the general population ($p < .01$).⁴ This finding is consistent with research that has demonstrated that disability is most prevalent among African Americans across the age range (Bradsher, 1995). Small differences between youth with disabilities and youth in the general population in other racial/ethnic groups are not statistically significant.

⁴ National Center for Education Statistics (2002).

Exhibit B-4
RACIAL/ETHNIC BACKGROUNDS OF YOUTH, BY DISABILITY CATEGORY

Percentage whose race/ ethnicity is:	All Youth	Learning Disability	Speech/ Language Impair- ment	Mental Retarda- tion	Emotional Distur- bance	Hearing Impair- ment	Visual Impair- ment	Ortho- pedic Impair- ment	Other Health Impair- ment	Autism	Traumatic Brain Injury	Multiple Dis- abilities	Deaf- Blind- ness
White	62.1 (1.5)	62.3 (2.3)	64.7 (2.3)	54.8 (2.4)	61.4 (2.4)	59.9 (2.8)	62.1 (3.4)	64.3 (2.6)	76.6 (2.0)	62.0 (2.6)	68.5 (4.2)	65.6 (2.5)	62.4 (4.7)
African American	20.7 (1.3)	18.4 (1.9)	17.7 (1.8)	33.3 (2.3)	25.0 (2.2)	17.5 (2.1)	20.1 (2.8)	15.5 (2.0)	13.3 (1.6)	23.7 (2.3)	17.9 (3.5)	18.4 (2.1)	14.7 (3.4)
Hispanic	14.1 (1.1)	16.2 (1.8)	14.2 (1.7)	9.6 (1.4)	10.2 (1.5)	17.3 (2.1)	14.0 (2.4)	16.4 (2.0)	7.7 (1.2)	8.9 (1.5)	10.0 (2.7)	11.6 (1.7)	19.5 (3.9)
Asian/Pacific Islander	1.3 (.4)	1.0 (.5)	2.1 (.7)	1.2 (.5)	1.4 (.6)	4.1 (1.1)	3.0 (1.2)	3.2 (1.0)	1.2 (.5)	4.0 (1.0)	2.3 (1.4)	1.8 (.7)	2.9 (1.6)
American Indian/ Alaska Native	1.2 (.3)	1.3 (.5)	.9 (.5)	.5 (.3)	1.6 (.6)	1.2 (.6)	.3 (.4)	.4 (.3)	.7 (.4)	.7 (.4)	1.2 (1.0)	2.3 (.8)	.0 (.0)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

The disproportionality of African Americans among youth with disabilities is concentrated in a few categories. Whereas the racial/ethnic composition of youth with learning disabilities; speech, hearing, or orthopedic impairments; or multiple disabilities resembles the general population, African Americans comprise significantly larger percentages of youth with mental retardation (33%) and emotional disturbances (25%). The percentage of Hispanic youth is particularly small among those with other health impairments (8%) or autism (9%). These racial/ethnic differences between disability categories may contribute to differences in the experiences of youth, apart from their differences in disability.

Household Risk Factors

A child's household is his or her first educational setting. At home, children form their first emotional attachments, achieve their early developmental milestones, and acquire the foundation for their subsequent growth and learning. During adolescence, the family can be the context within which a youth wrestles with his or her desire for independence and separation, and the need to stay connected to family and home. Thus, as children grow up, what they need from their families and others who share their households may change, but children and youth continue to have their values, expectations, and preferences shaped by their experiences at home.

This section examines several aspects of households that can be risk factors in children's development: living with other than two parents, having a poorly educated or unemployed head of household, or living in a low-income household (see for example, Duncan & Brooks-Gunn, 1997). These factors are described for youth with disabilities as a whole compared with the general population, and then for youth who differ in their primary disability classification.

**Exhibit B-5
HOUSEHOLD CHARACTERISTICS OF
YOUTH WITH DISABILITIES AND YOUTH
IN THE GENERAL POPULATION**

	Youth with Disabilities	Youth in the General Population
Percentage living:		
With two parents	61.4 (1.6)	73.8 ^a (1.0)
With one parent	31.1 (1.5)	22.5 ^a (1.0)
With relative(s)	5.3 (.7)	3.2 (.4)
With a legal guardian/not a relative	1.1 (.3)	^b
In foster care	1.0 (.3)	^b
In another arrangement	.3 (.1)	.5 (.2)
Percentage with:		
Head of household who is not a high school graduate	21.0 (1.3)	10.0 ^c (.6)
Unemployed head of household	17.0 (1.2)	11.0 ^c (.6)
Percentage with annual household income of:		
\$25,000 or less	36.6 (1.6)	19.7 ^d
\$25,001 to \$50,000	30.0 (1.5)	25.5
More than \$50,000	33.4 (1.5)	54.6
Percentage in poverty	23.5 (1.4)	16.3 ^e

Source: NLTS2 Wave 1 parent interviews.

^a Computed using data for 13- to 17-year-olds from the National Longitudinal Study of Adolescent Health, 1999.

^b Youth living with a legal guardian, in foster care, or in residential school or institution are included in the "other arrangement" category.

^c Computed using data for 13- to 17-year-olds from the National Household Education Survey, 1999.

^d Data are for youth 12 through 17 years old. U.S. Census Bureau (2002a).

^e U.S. Census Bureau (2002b).

Standard errors are in parentheses.

Household Risk Factors for Youth with Disabilities and the General Population

Like youth in the general population, a majority of youth with disabilities (61%) live in households with two parents (either biological, step, or adoptive parents, Exhibit B-5). This is substantially below the 74% of youth in the general population who do so ($p < .001$). Another 31% live with one parent. Thus, 92% of youth with disabilities live with a parent. Five percent of youth live with other adult family members in households that do not include one of their own parents, and 1% live with a legal guardian who is not a family member. One percent of youth with disabilities live in foster care; few live at a residential school or institution.⁵

The heads of household of youth with disabilities tend to have lower levels of education than parents of the general population of youth. In the general population, 10% of heads of household are not high school graduates, whereas more than twice as many heads of household of youth with disabilities have not graduated from high school ($p < .001$). Similarly, heads of households of youth with disabilities are more likely to be unemployed (17%) than those in the general population (11%, $p < .001$).

Consistent with lower education levels and rates of employment, youth with disabilities are more likely than others to be poor. Almost one-fourth of them live in poverty, compared with about 16% of youth in the general population ($p < .001$). Poverty has been shown to have negative impacts on children and youth with disabilities and their

families in multiple domains, including health, productivity, physical environment, emotional well-being, and family interaction (Park, Turnbull, & Turnbull, 2002).

⁵ These include residential or boarding schools, hospitals, mental health facilities, group homes, and correctional facilities.

Disability Differences in Household Risk Factors

The prevalence of risk factors among households of youth with different disabilities shows quite a wide range (Exhibit B-6). Most striking, youth with mental retardation are more likely than others to experience high levels of each kind of risk, as are youth with emotional disturbances to a somewhat lesser degree. These youth are the least likely to live with two parents and among the most likely to live in foster care. They also are the most likely to come from households in poverty and those with heads of household who are not employed.

In contrast, youth with other health impairments have the lowest rates of some kinds of risk factors. For example, they are among the least likely to be living in poverty or in a household where the head of household is unemployed, and most likely to be living with two parents. In fact, they are somewhat less likely to experience some of these risk factors than youth in the general population. Youth with physical and sensory impairments are in the mid-range among the disability categories on many risk factors.

Exhibit B-6
HOUSEHOLD CHARACTERISTICS, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Living:												
With both parents	63.3 (2.4)	69.7 (2.3)	54.8 (2.6)	48.7 (2.6)	65.8 (2.8)	61.0 (3.5)	66.9 (2.7)	71.9 (2.2)	67.5 (2.5)	61.2 (4.5)	63.6 (2.6)	60.3 (5.2)
With one parent	30.6 (2.3)	24.8 (2.2)	34.5 (2.5)	38.1 (2.6)	26.0 (2.6)	30.7 (3.3)	27.4 (2.5)	22.2 (2.0)	27.0 (2.4)	30.3 (4.2)	24.9 (2.4)	35.7 (5.1)
With relative(s)	5.0 (1.1)	3.5 (.9)	6.2 (1.3)	7.9 (1.4)	5.3 (1.3)	5.8 (1.7)	3.6 (1.1)	2.8 (.8)	2.3 (.8)	5.7 (2.1)	4.3 (1.1)	3.4 (1.9)
With a legal guardian (not a relative)	.6 (.4)	.6 (.4)	2.3 (.8)	2.2 (.8)	2.5 (.9)	2.0 (1.0)	1.1 (.6)	1.0 (.5)	1.1 (.6)	1.6 (1.2)	2.3 (.8)	.0 (.0)
In foster care	.5 (.4)	1.2 (.5)	1.8 (.7)	2.8 (.9)	.3 (.3)	.1 (.2)	.5 (.4)	1.7 (.6)	1.7 (.7)	.9 (.9)	2.6 (.9)	.0 (.0)
In another arrangement	.1 (.2)	.1 (.2)	.4 (.3)	.4 (.4)	.2 (.4)	.3 (.4)	.4 (.5)	.3 (.4)	.4 (.4)	.2 (.6)	2.3 (.9)	.7 (.9)
With head of household who is:												
Not a high school graduate	20.3 (2.0)	19.7 (2.0)	32.3 (2.4)	19.5 (2.1)	18.3 (2.3)	15.1 (2.6)	14.9 (2.0)	13.3 (1.6)	11.2 (1.7)	15.1 (3.4)	14.2 (1.9)	18.4 (3.9)
Not employed	14.0 (1.7)	14.8 (1.8)	28.2 (2.3)	24.0 (2.3)	14.2 (2.1)	17.5 (2.8)	16.3 (2.1)	12.5 (1.6)	16.0 (2.0)	17.0 (3.6)	20.1 (2.2)	19.4 (4.0)
In poverty	22.1 (2.1)	19.2 (2.1)	41.4 (2.6)	29.8 (2.4)	20.2 (2.4)	19.7 (2.9)	20.4 (2.4)	15.0 (1.8)	15.0 (1.8)	18.8 (3.6)	24.0 (2.5)	24.3 (4.7)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Summary

Youth with disabilities constituted 13% of all 13- to 16-year-olds who were enrolled in school in the 2000-01 school year. Although they include students with 12 different primary disability classifications, 85% are classified as having either learning disabilities, mental retardation, or emotional disturbances as their primary disabilities.

NLTS2 youth were 13 to 17 years old when data were collected. Youth with speech/language impairments have a larger proportion of younger students, whereas visual impairment is a category that has a larger proportion of older students.

Almost two-thirds of youth are boys. Boys are little more than half of youth with sensory impairments, but they are about three-fourths of youth with emotional disturbances and other health impairments and more than 80% of youth with autism.

African American youth are a larger proportion of youth with disabilities relative to the general population. This difference between the two populations of youth is consistent with patterns found among infants and toddlers with disabilities or developmental delays, as well as among elementary- and middle-school-age students receiving special education. However, disproportionality is concentrated among youth in a limited number of disability categories. African Americans make up particularly large proportions of those with mental retardation or emotional disturbances. The percentage of Hispanic youth is particularly small among those with other health impairments or autism.

The households of youth with disabilities also differ significantly from the general population in the prevalence of several risk factors. Of particular note is the significantly higher rate of low-income households among youth with disabilities, probably a reflection, in part, of the overall lower levels of education and employment among heads of households of youth with disabilities. Several risk factors are particularly prominent among youth with mental retardation and emotional disturbances.

Awareness of these important differences between youth with disabilities and those in the general population, and of the highlighted differences between youth with different primary disability classifications, is an important foundation for understanding the experiences described in this report.

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Appendix C
UNWEIGHTED SAMPLE SIZES

Exhibit C-1	
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR ALL STUDENTS WITH DISABILITIES: EXHIBITS 2-1, 3-1, 4-1, 4-2, 5-1, 5-2, 5-3, 5-4, B-2, B-3, AND B-4	
Exhibit 2-1	8,599
Exhibit 2-2	8,343
Exhibit 3-1	
Friends	8,581
Telephone calls	8,591
Invitations	8,844
Computer communication	7,778
No friendship interactions	8,844
Exhibit 4-1	
Exhibit 4-2	
Exhibit 5-1	997
Exhibit 5-2	5,108
Exhibit 5-3	3,238
Exhibit 5-4	
School year	2,061
Summer	2,736
Exhibit B-2	9,225
Exhibit B-3	9,230
Exhibit B-4	9,229

Exhibit C-2		
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS WITH YOUTH WITH DISABILITIES AND THE GENERAL POPULATION: EXHIBITS 4-1, 5-5, AND B-5		
	Youth with Disabilities	Youth in the General Population*
Exhibit 4-1		
Any activity	9,024	9,843
Any groups	9,001	9,814
Lessons	9,007	9,819
School groups	8,624	NA
Community groups	9,020	NA
Volunteer activities	8,925	9,861
Exhibit 5-5	2,357	2,062
Exhibit B-5		
Living arrangements	8,429	3,202
Head of household education	8,461	3,475
Head of household employment	8,446	3,532
Income	8,333	3,630

NA=Not available

Exhibit C-3
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR DISABILITY CATEGORIES:
EXHIBITS 2-3, 3-2, 4-4, 5-2, 5-6, B-2, B-3, B-4, AND B-6

	Learning Disability	Speech/Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Exhibit 2-3	832	808	796	758	800	631	868	874	869	361	863	139
Exhibit 3-2												
Friends	831	809	795	759	799	623	867	875	866	362	857	138
Telephone calls	831	810	794	759	797	631	867	873	867	361	861	140
Invitations	851	839	832	782	818	642	896	896	887	365	881	155
Computer communication	725	716	671	660	722	592	808	809	827	313	798	137
No interactions	831	809	794	759	797	623	867	873	867	361	857	138
Exhibit 4-4												
Any activity	859	843	843	813	837	665	903	911	912	367	909	162
Any groups	858	843	839	810	835	660	902	909	911	367	907	160
Lessons	859	842	841	809	834	665	902	908	911	367	907	162
School groups	838	808	799	773	810	634	860	873	874	355	860	140
Community groups	859	845	841	815	837	663	903	910	911	367	909	160
Volunteer activities	852	829	833	808	817	657	898	900	907	365	901	158
Type of group	547	557	436	438	600	423	517	615	462	222	468	88
Exhibit 5-2	515	377	488	498	474	401	502	550	515	205	512	71
Exhibit 5-6												
Employment rates	829	803	797	777	800	636	860	875	873	358	865	139
Job types	490	373	275	402	342	183	210	494	121	142	175	31
School-year hours	324	245	158	253	207	112	134	319	76	103	111	0
Summer hours	436	320	223	340	306	140	181	430	87	115	111	23
Earnings	364	279	180	282	256	124	144	369	83	98	112	23
Exhibit B-2	883	871	864	836	865	685	913	923	921	374	923	167
Exhibit B-3	884	871	865	836	865	686	914	923	922	374	923	167
Exhibit B-4	884	871	865	836	865	685	914	923	922	374	923	167
Exhibit B-6												
Living arrangements	803	795	770	749	758	618	849	854	872	353	870	138
Head of household education	806	798	779	738	773	619	853	875	881	339	846	154
Head of household employment	807	797	777	737	773	618	849	873	879	339	844	153
Income	800	770	780	761	781	614	825	857	833	346	813	153
Poverty	775	736	734	733	751	601	796	827	807	341	792	133

**Exhibit C-4
UNWEIGHTED SAMPLE SIZES FOR
EXHIBITS BY AGE: EXHIBITS 3-2 AND 5-7**

	<u>13 or 14</u>	<u>15</u>	<u>16</u>	<u>17</u>
Exhibit 3-2				
Friends	2,957	2,130	2,150	1,344
Telephone calls	2,958	2,135	2,150	1,348
Invitations	3,051	2,195	2,211	1,382
Computer communications	2,684	1,941	1,936	1,217
No interactions	2,958	2,130	2,150	1,344
Exhibit 5-7				
Employment rates	2,968	2,138	2,152	1,351
Job types	887	735	943	673
School-year hours	553	448	616	444
Summer hours	735	622	787	592
Earnings	558	522	726	550

**Exhibit C-5
UNWEIGHTED SAMPLE SIZES FOR
EXHIBITS BY GENDER: EXHIBITS
2-4, 3-3, 4-5, AND 5-8**

	<u>Male</u>	<u>Female</u>
Exhibit 2-4	5,565	3,034
Exhibit 3-3		
Friends	5,561	3,020
Telephone calls	5,566	3,025
Invitations	5,722	3,122
Computer communications	4,998	2,780
No interactions	5,561	3,020
Exhibit 4-5	3,453	1,940
Exhibit 5-8		
Employment rates	5,591	3,018
Job types	2,186	1,052
Earnings	1,564	793

Exhibit C-6
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS BY INCOME AND RACE/ETHNICITY:
EXHIBITS 2-5, 3-4, 4-4, 4-6, AND 5-9

	Income			Race/Ethnicity		
	\$25,000 or Less	\$25,001 to \$50,000	More than \$50,000	White	African American	Hispanic
Exhibit 2-5	2,739	3,291	2,777	5,212	1,750	1,136
Exhibit 3-4						
Friends	2,736	2,383	2,775	5,203	1,742	1,134
Telephone calls	2,737	2,390	2,775	5,207	1,747	1,136
Invitations	2,849	2,473	2,920	5,342	1,806	1,169
Computer communications	2,254	2,196	2,716	4,941	1,434	940
No interactions	2,736	2,383	2,775	5,207	1,742	1,134
Exhibit 4-4						
Exhibit 4-6						
Any activity	2,901	2,515	2,871	5,464	1,831	1,190
Any groups	2,888	2,509	2,870	5,454	1,825	1,184
Lessons	2,891	2,514	2,869	5,456	1,825	1,186
School groups	2,729	2,394	2,794	5,239	1,740	1,139
Community groups	2,900	2,510	2,872	5,461	1,831	1,189
Volunteer activities	2,865	2,492	2,850	5,414	1,802	1,171
Type of group	1,435	1,482	2,036	3,487	1,059	523
Exhibit 5-9						
Employment rates	2,754	2,410	2,805	5,250	1,726	1,128
Earnings	546	697	992	1,860	282	171

Exhibit C-7
UNWEIGHTED SAMPLE SIZES FOR
EXHIBIT 4-3

	Youth Had Participated in Any Activity	
	No	Yes
Friends	2,168	6,410
Telephone calls	2,177	6,410
Invitations	2,266	6,569
Computer communications	1,193	4,800

Exhibit C-8
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 6-1

Social Interactions of Youth

	Visit with Friends		Receive Phone Calls from Friends		Are Invited to Social Activities		Use E-mail or Chat Room		Do Any of These	
	Never	Frequently	Rarely	Frequently	No	Yes	No	Yes	No	Yes
Social skills	1,422	1,801	3,479	4,929	2,055	6,570	568	5,363	655	7,980
Assertion skills	1,490	1,808	3,583	4,945	2,147	6,615	572	5,381	714	8,054
Self-control skills	1,426	1,803	3,485	4,944	2,066	6,588	570	5,377	659	7,994
Cooperation skills	1,483	1,810	3,579	4,961	2,146	6,637	573	5,393	698	8,071
Prior suspension or expulsion from school	1,495	1,809	3,588	4,957	2,103	6,592	576	5,391	698	8,071
Previous arrest	1,492	1,807	3,585	4,947	2,103	6,598	571	5,385	706	7,892

Exhibit C-9
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 6-2

Youth Participate In:

	Lessons or Classes		School Sponsored Group		Community Sponsored Group		Volunteer Activity		Paid Work		Any of These	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Overall social skills	6,442	2,319	4,728	3,693	4,565	4,205	5,257	3,433	5,230	3,219	1,571	7,109
Assertion skills	6,562	2,345	4,822	3,722	4,672	4,248	5,373	3,465	5,343	3,234	1,630	7,190
Self-control skills	6,469	2,324	4,741	3,703	4,588	4,215	5,282	3,438	5,250	3,224	1,578	7,130
Cooperation skills	6,578	2,349	4,826	3,727	4,683	4,257	5,388	3,468	5,349	3,238	1,633	7,202
Prior suspension or expulsion from school	6,448	2,270	4,836	3,736	4,575	4,152	5,244	3,400	5,343	3,218	1,650	7,051
Prior arrest	6,424	2,266	4,830	3,722	4,556	4,143	5,226	3,399	5,364	3,234	1,639	7,040

