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Bringing Research to Policy and Practice
POLICY RESEARCH: IERC 2010-4

A Longitudinal Study of Illinois High School Graduates with Disabilities: A Six-Year Analysis of Postsecondary Enrollment and Completion

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EXECUTIVE SUMMARY

Introduction

This study highlights the postsecondary pathways of students with disabilities from the Illinois high school class of 2002 (N=7,598) and provides comparisons to the students from the same cohort without a disability (N=105,537). There is a wealth of higher education information on these students, including information regarding enrollments and the completion of certificates and degrees. Also, a sufficient amount of time has passed to adequately explore bachelor's degree completion patterns, as the study period runs from the fall semester of 2002 to the end of the spring semester of 2008. The current study has two parts: 1) an analysis of the differences between students with disabilities and students without a disability in terms of demographic and academic characteristics, in addition to characteristics of the students' respective high schools; and 2) an analysis of the students' initial level of enrollment in higher education and the attainment of an intended outcome, for instance, obtaining a bachelor's degree for those initially enrolling at a four-year institution.

The results of the following study can be used to help identify some of the problem areas along the educational pipeline for students with disabilities in an effort to inform the work of policymakers and practitioners. Such information could be used to improve key transition points in the pipeline and reduce disparities that exist between students with disabilities and those without.

Key Findings

Student and School Characteristics

Students with disabilities relative to students without a disability were significantly more likely to be: male, within one of the non-Asian minority groups, and from families with limited financial resources. Concerning academic characteristics, students with disabilities were significantly less likely to: be well-prepared for college, have participated in a college preparatory program, and have taken three or more years of mathematics. In terms of school characteristics, students with disabilities were slightly more likely to be from a high school in the low funding and low teacher academic capital quartiles, in addition to being slightly more likely to be from an urban area and coincidentally, Chicago.

Based on the demographic and academic characteristics of students with disabilities and some of the overall characteristics of their high schools, one would expect a lower likelihood of postsecondary enrollment and degree completion relative to students without a disability. When the differences between students with disabilities and students without a disability regarding most of the previously mentioned student and school characteristics are controlled to determine the relative impact of having a disability holding everything else constant, students with disabilities had a significantly lower likelihood of enrolling at a four-year institution, and earning a bachelor's degree if they enrolled (Smalley, Lichtenberger, & Brown, 2010).

Postsecondary Pathways

The postsecondary enrollment patterns of students with disabilities were generally different from those of students without a disability, as students with disabilities were significantly less likely to enroll in postsecondary education overall and slightly more likely to delay their postsecondary enrollment. More notably, students with disabilities who initially enrolled in the fall semester of 2002 were significantly more likely to enroll at a two-year institution rather than a four-year institution, while the opposite was true for students without a disability.

Sector

The sector enrollment patterns varied greatly between the college-going students with disabilities and students without a disability. Among those enrolling, students with disabilities were slightly more likely to enroll in-state (85% vs. 82%) and among those enrolling in-state, students with disabilities were significantly more likely to enroll at an Illinois community college (58% vs. 39%); as a result students with disabilities who enrolled in-state, were much less likely to enroll at a public four-year institution or a private not-for-profit institution.

Outcome Attainment

When compared with students without a disability, students with disabilities had a significantly lower bachelor's completion rate within the six-year timeframe of the study (53% vs. 68%). On the positive side, a slightly higher proportion of students with disabilities were still enrolled at either a two-year or a four-year institution at the end of the study. Students with disabilities also had lower rates of attaining one or more of the outcomes—earning a certificate, earning an associate's degree, or transferring to a four-year institution—at a two-year institution (37% vs. 52%).

Differences between the Disability Subgroups

In terms of the postsecondary outcomes, there were some differences between the various disability subgroups and in certain instances some of the subgroups had higher completion rates than students without a disability. Among the students with disabilities, those in the other orthopedic and multiple disability categories had the highest overall and initial four-year enrollment rates. They also had the highest bachelor's completion rates (among four-year starters) and the highest rate of attaining at least one of the three goals at a two-year institution.

Recommendations for Further Investigation

Employment Outcomes

Analyzing the employment outcomes for all students with disabilities, college-going and not college-going alike. In doing this it can be determined if there are employers in key industries that are more likely to hire students with disabilities and provide them with opportunities for career advancement.

College Success

Conducting a qualitative study to better determine what is related to the college success of students with disabilities. For example, are successful college-going students with disabilities more likely to receive disability support services from their respective institution? Furthermore, what are some of the characteristics of those support service programs leading to the increased likelihood of success?

Institutional Characteristics

Determining the impact of select characteristics of the postsecondary institutions in which the students with disabilities enrolled on bachelor's degree completion, namely the sector and selectivity of those institutions. Additionally, exploring how those institutional characteristics interact with student characteristics, particularly the alignment between college readiness and the selectivity of a student's given institution.

Suggested citation:

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INTRODUCTION

In 2003, the Illinois Education Research Council (IERC) began to conduct research regarding the members of the Illinois high school class of 2002 and their various pathways through postsecondary education. Some of IERC's more recent research has shown that the postsecondary pathways of students with disabilities generally differ from the overall cohort. For example, students with disabilities delay their postsecondary enrollment at a slightly higher rate than the entire cohort. Furthermore, if a student with a disability enrolled in postsecondary education immediately after high school, the enrollment is significantly more likely to be at a two-year institution rather than a four-year institution, while the opposite pattern was true for the entire cohort (Smalley, Lichtenberger, & Brown, 2010). The differences between students with disabilities and the overall cohort in terms of postsecondary pathways warranted an in-depth analysis focusing on the variations in the postsecondary pathways between two groups: 1) students with disabilities; and 2) students without a disability. Differences between students within the various disability subgroups were also established.

The current study highlights the postsecondary pathways of students with disabilities. There is a wealth of higher education information on these students, including information regarding enrollments and the completion of certificates and degrees. Also, a sufficient amount of time has passed to adequately explore bachelor's degree completion patterns, as the study period runs from the fall semester of 2002 to the end of the spring semester of 2008. This current study has two parts: 1) an analysis of the differences between students with disabilities and students without a disability in terms of demographic and academic characteristics, in addition to characteristics of the students' respective high school; and 2) an analysis of the students' initial level of enrollment in higher education and the attainment of an intended outcome, for instance, obtaining a bachelor's degree for those initially enrolling at a four-year institution.

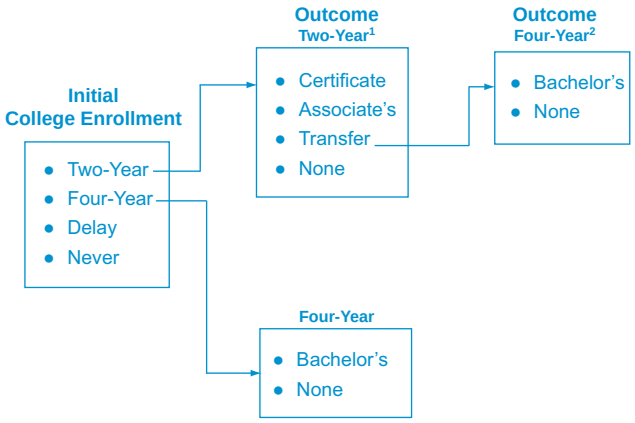
Purpose

The following results can be used to help identify some of the problem areas along the educational pipeline for students with disabilities in an effort to inform the work of policymakers and practitioners. Such information could be used to improve key transition points in the pipeline and reduce the disparities that exist between students with disabilities and students without a disability.

Framework of Study

This report provides a focused analysis of initial college enrollment and the attainment of intended outcomes for those enrolling at two-year and four-year institutions (see Figure 1). Key findings regarding the more specific pathways and completion patterns such as the bachelor completion rates for the students transferring from a two-year institution to a four-year institution are also highlighted.

Figure 1. Framework of Study



[1] Two-year outcomes are not mutually exclusive, so more than one could occur

[2] For two-year to four-year transfers

METHODS

Data

In 2001, Illinois began administering the ACT test to all 11th graders in the State's public schools as part of the Prairie State Achievement Examination (PSAE). For the first time, scores and background information were available for nearly all public school students who would be completing high school one year later, rather than just those who elected to take the test because they were expecting to apply to a postsecondary institution requiring ACT scores for admission. The IERC received the 2002 senior class data from ACT under shared data agreements with the Illinois Board of Higher Education and ACT and refer to this cohort of Illinois public high school students as the Class of 2002. Student college enrollment and degree completion information was obtained from the National Student Clearinghouse (NSC), a national collaborative, in which nearly 3,300 postsecondary institutions participate, covering 92% of all postsecondary student enrollments (National Student Clearinghouse, 2010). The data allow for an analysis of student transfers among different institutions both in-state and out-of-state.

Delimitations

This study is delimited to Illinois Public High School students who took the PSAE/ACT during their junior year in 2001, so being a member of the cohort did not necessarily guarantee high school graduation in the spring of 2002. Private high school students and out-of-state high school graduates who migrated to Illinois higher education institutions were not included in the study.

Limitations

It should be noted that the disability information used in this study is self-reported (for more information see Definitions). Generally, one of two things may occur in this instance increasing the potential for error: 1) a student with a diagnosed disability may feel uncomfortable disclosing his or her disability, as they are not obligated to do; or 2) a student may report a disability without an official diagnosis. However, this method would fit within the U.S. Census Bureau's process of defining disability status (U.S. Census Bureau, 2000).

Definitions

Student Characteristics

Disability

Disability information is based on the following item in the Student Profile Section of the questionnaire that precedes the ACT.

> Please respond to this item only if you have a physical or diagnosed learning disability. Mark the one choice that most closely describes your situation. Blind or low-vision (not correctable with prescription lenses), Hearing impairment, Learning disability, Attention deficit disorder, Other neurological impairment, Require wheelchair access, Other orthopedic impairment, Multiple disabilities, and Other disability (ACT, 2001).

Demographics

Gender, race, and parental income were all derived from self-reported information from the ACT survey.

Academic Characteristics

Grade point average, ACT Core, program type, years of mathematics, and whether they previously earned college credit were all derived from the ACT survey. The college readiness index was created by the IERC as a combination of high school grade point average and overall ACT score and is modeled on the work of Berkner and Chavez (1997). The college readiness index is categorized into five levels—from not/least ready, minimally ready, somewhat ready, more ready, and most ready. Please see Table 1 for more specific details.

Table 1. College Readiness Index for the Entire Class of 2002

	High School GPA (self-reported)				
ACT	<= 2.4	2.5 - 2.9	3.0 - 3.4	3.5 - 4.0	Missing
<20	19.7%	8.0%	6.5%	1.9%	14.6%
20-22	3.1%	3.5%	5.2%	2.9%	4.0%
23-25	1.1%	1.7%	4.2%	4.8%	2.7%
26+	0.4%	0.8%	2.7%	9.5%	2.8%

School Characteristics

The IERC Index of Teacher Academic Capital (ITAC) involved statistically combining five different teacher attributes aggregated to the school level. See White, Presley, and DeAngelis (2008) on the development of this index. The school funding information was derived from Illinois State Board of Education public reports and connected to each student's corresponding high school. The regions are based on the Regional Offices of Education in Illinois for which the corresponding high school is located. For specific information, see Figure 8 (page 11). Urbanicity was based on the location of the students' respective high school and uses four categories: urban, suburban, town, and rural.

Outcomes

Overall Enrollment

The overall enrollment measure includes those initially enrolling at a four-year institution (four-year starters), those initially enrolling at a two-year institution (two-year starters), and those delaying their enrollment. Obviously, there were also individuals who did not enroll in postsecondary education during the study period and they are aptly labeled the "not yet enrolled" group. If there was concurrent enrollment at both a four-year and a two-year institution, the four-year enrollment superseded the two-year enrollment.

Bachelor's Completion

It was assumed that the intent of a student who enrolls at a four-year institution is to complete a baccalaureate program; therefore, the attainment of a bachelor's degree is measured as a completion in the study. For those who have not completed within the six-year period, it was determined if they were still enrolled at the end of the study which would keep them in the educational pipeline moving towards completion.

Outcomes for 2002 Two-Year College Starters

It was difficult to attribute a specific intent of enrollment for students who initially enrolled at a two-year institution because individuals enroll at a two-year institution for a variety of reasons—for example they may enroll in remedial courses in order to become better prepared for college or they may enroll in a sequence of technical courses required for job advancement. In other words, the intended outcome of the student is unknown and not as clear cut as it is for those initially enrolling at a four-year institution. However, it was still possible to measure three positive outcomes and the lack of attainment of any of the three outcomes was considered having an unknown or unmet outcome. Specifically, the three measurable positive outcomes are earning a certificate, earning an associate's degree, or transferring to a four-year institution. When a student transfers to a four-year institution, their intended outcome evolves and becomes bachelor's completion. It should be noted that no distinction between the various types of associate's degrees was made and that certificates included all career and technical education certificates of one year or more.

RESULTS

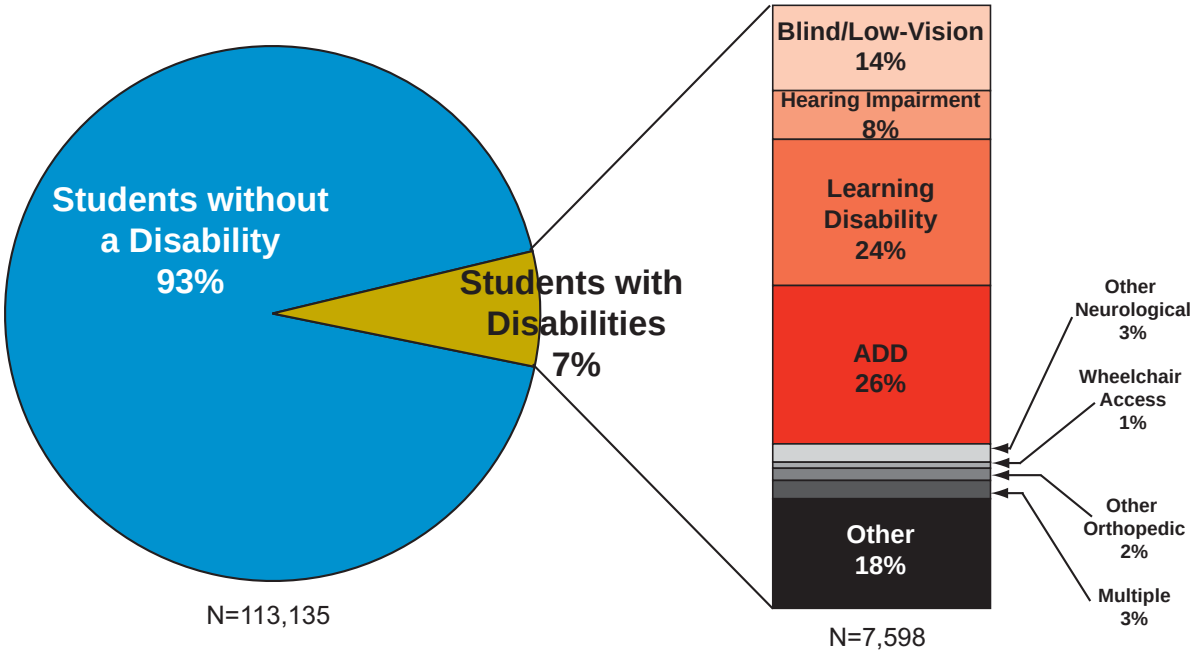
Analysis of Differences between Students with Disabilities and Students without a Disability

Students with disabilities comprised a little less than seven percent (N=7,598) of the Class of 2002. In terms of key demographic variables used in past IERC studies to create groups, students with disabilities were substantially larger than some of the groups based on race and region. To put the size of the group in context, there are significantly more students with disabilities than Asian students (N=4,692) and students from the Southeast region (N=4,525).

As illustrated on Figure 2, students with attention deficit disorder (ADD) (26%) and students with a learning disability (24%) were the two largest disability subgroups; accounting for half of all students with disabilities. Students requiring wheelchair access were the smallest disability subgroup (1%) closely followed by the students in the other orthopedic category at 2%.

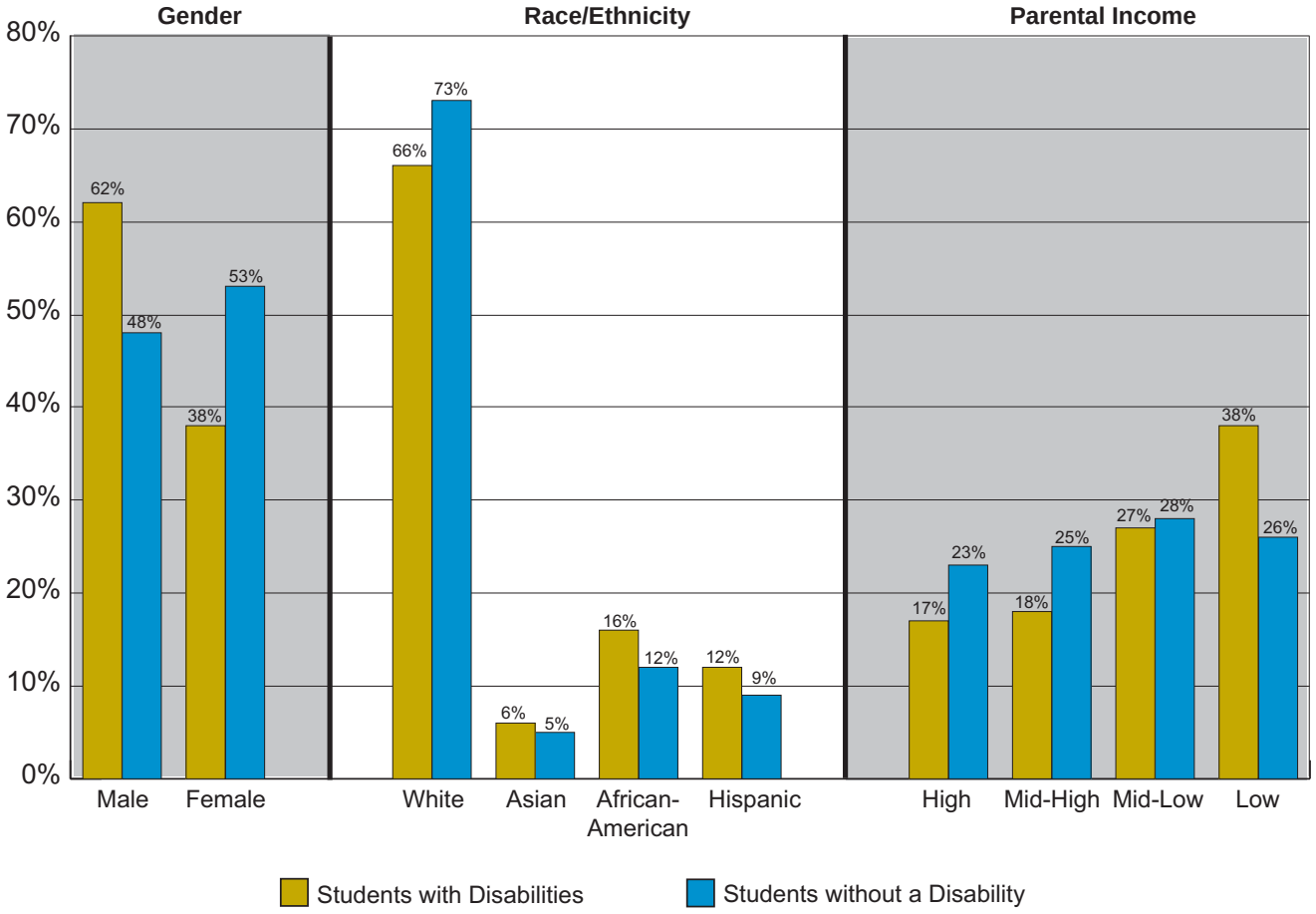
Students with disabilities were significantly more likely to be male compared with students without a disability (see Figure 3). Past research has shown that males are significantly less likely to enroll in postsecondary education and complete degrees relative their female counterparts. Students with disabilities were less likely to be white when compared with students without a disability (66% vs. 73%) and they were more likely to be within one of the non-Asian minority race groups (28% vs. 21%); previous research has shown that Asian and White students enroll in postsecondary education at the highest rates in addition to having the highest degree completion rates. Students with disabilities were much more likely to be from families with limited economic resources and the relationship between financial resources and postsecondary enrollment and degree completion has long favored the wealthy; nearly two-thirds of students with disabilities (65%) were within the two lowest parental income categories compared with only 54% of the students without a disability.

Figure 2. Student Disability Status and the Disability Subgroups



* Does not add up to 100% due to rounding.

Figure 3. Student Demographic Characteristics and Student Disability Status



* Does not add up to 100% due to rounding.

Figure 4. Student Academic Characteristics and Student Disability Status

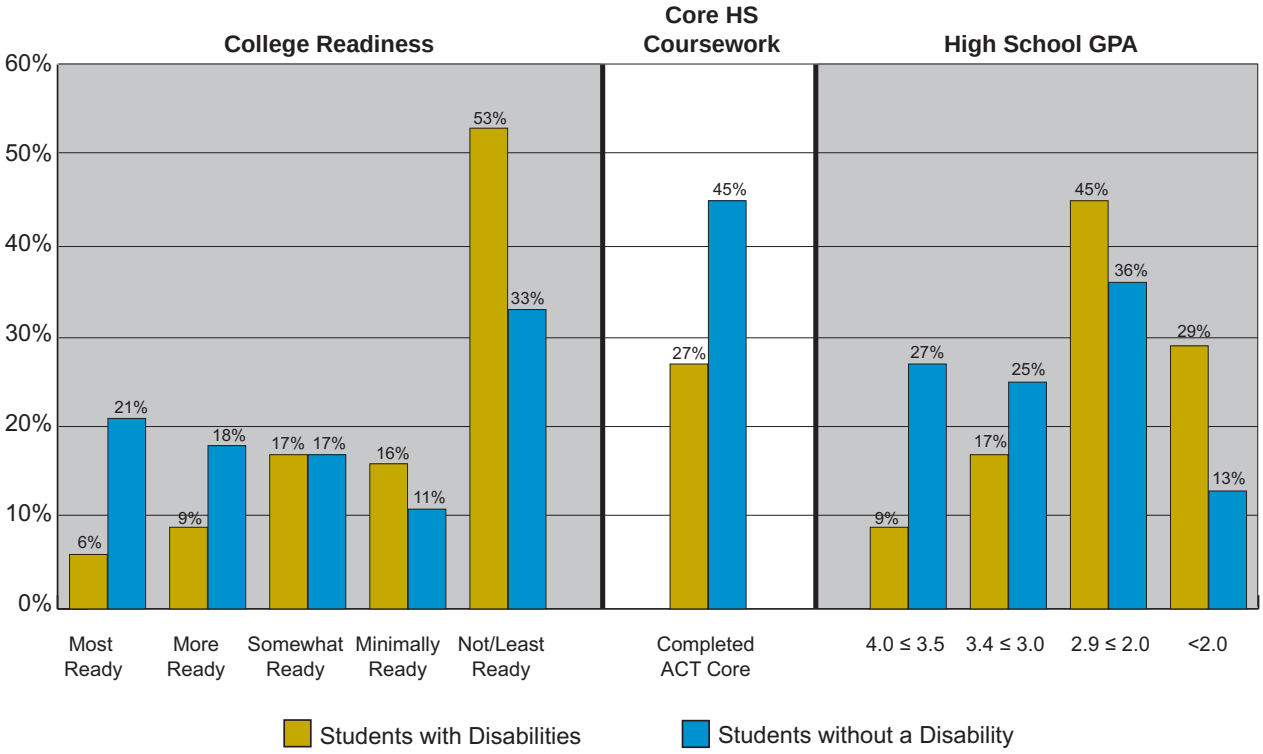
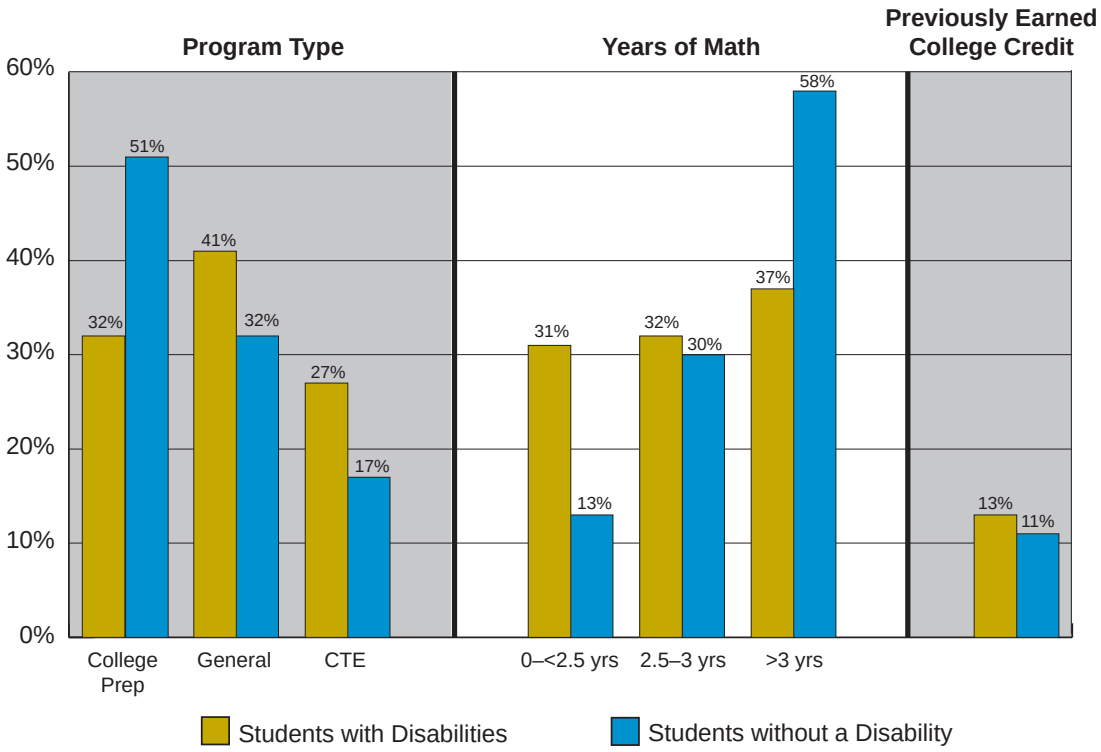
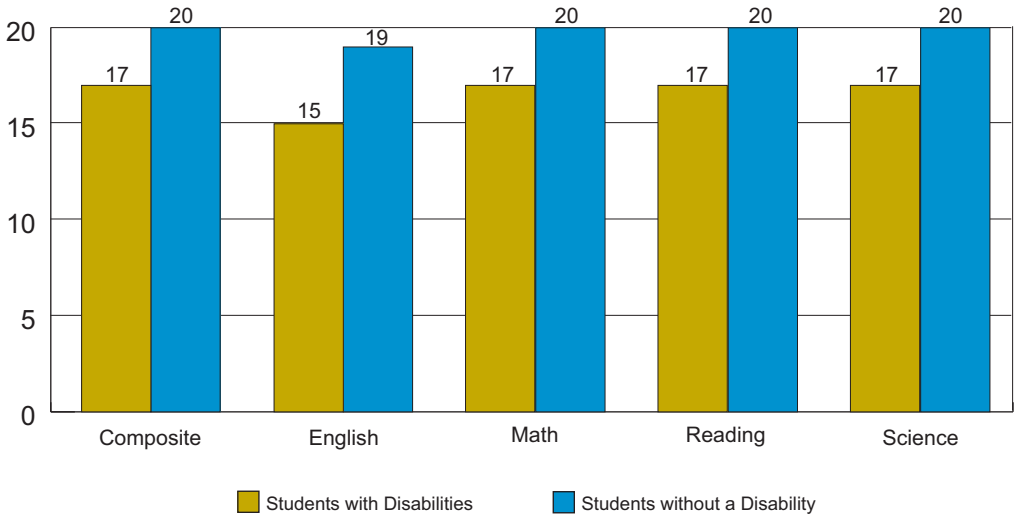


Figure 5. Student Academic Characteristics and Student Disability Status Continued



In terms of academic characteristics, students with disabilities tended to be less academically prepared relative to students without a disability. As illustrated on Figure 4, more than two-thirds (69%) of students with disabilities were minimally ready or less for college, while only 44% of the students without a disability were in the not/least or minimally ready categories. In terms of program type, students with disabilities were more likely to fall within the career and technical education (CTE) and general program categories (Figure 5) and less likely to have been in a college prep program compared with students without a disability. Furthermore, students with disabilities were much less likely to have taken more than three years of mathematics in high school (Figure 5). On the other hand, a slightly higher proportion of students with disabilities had previously earned college credit (during high school), which could be due to a higher proportion of students with disabilities participating in CTE programs, as dual-credit is sometimes offered in such programs. Students with disabilities had significantly lower ACT scores (Figure 6)—composite, English, math, reading, and science—in addition to having lower GPA's relative to students without a disability (Figure 4).

Figure 6. ACT Composite and Subtest Scores and Student Disability Status



Regarding the characteristics of the high schools of the respective students, there were only slight differences between students with disabilities and students without a disability. In terms of high school funding, students with disabilities were slightly less likely to be from schools in the high funding quartile and slightly more likely to be from schools in the low funding quartile (Figure 7). Previous research has shown that school funding is positively related to postsecondary enrollment and the completion of certificates and degrees. In terms of teacher quality, students with disabilities were slightly more likely to come from schools in the low ITAC quartile and slightly less likely to come from schools in the high quartile; this was relative to the roughly equal distribution of students without a disability among the four quartiles in both high school funding and teacher quality as measured by the ITAC score. In terms of regional differences, students with disabilities were slightly more likely to be from Chicago and slightly less likely to be from the Northeast region relative to students without a disability; only minimal differences existed between the groups in terms of the proportion coming from all of the other regions (Figure 8). Coincidentally, students from the Northeast region had the highest initial rate of enrollment at a four-year institution and also the highest rate of bachelor's completion among those enrolling at a four-year institution (Smalley, Lichtenberger, & Brown, 2010). Students with disabilities were slightly more likely to be from an urban area and slightly less likely to be from a suburban area (see Figure 7), which somewhat parallels the aforementioned regional differences.

Figure 7. High School Characteristics and Student Disability Status

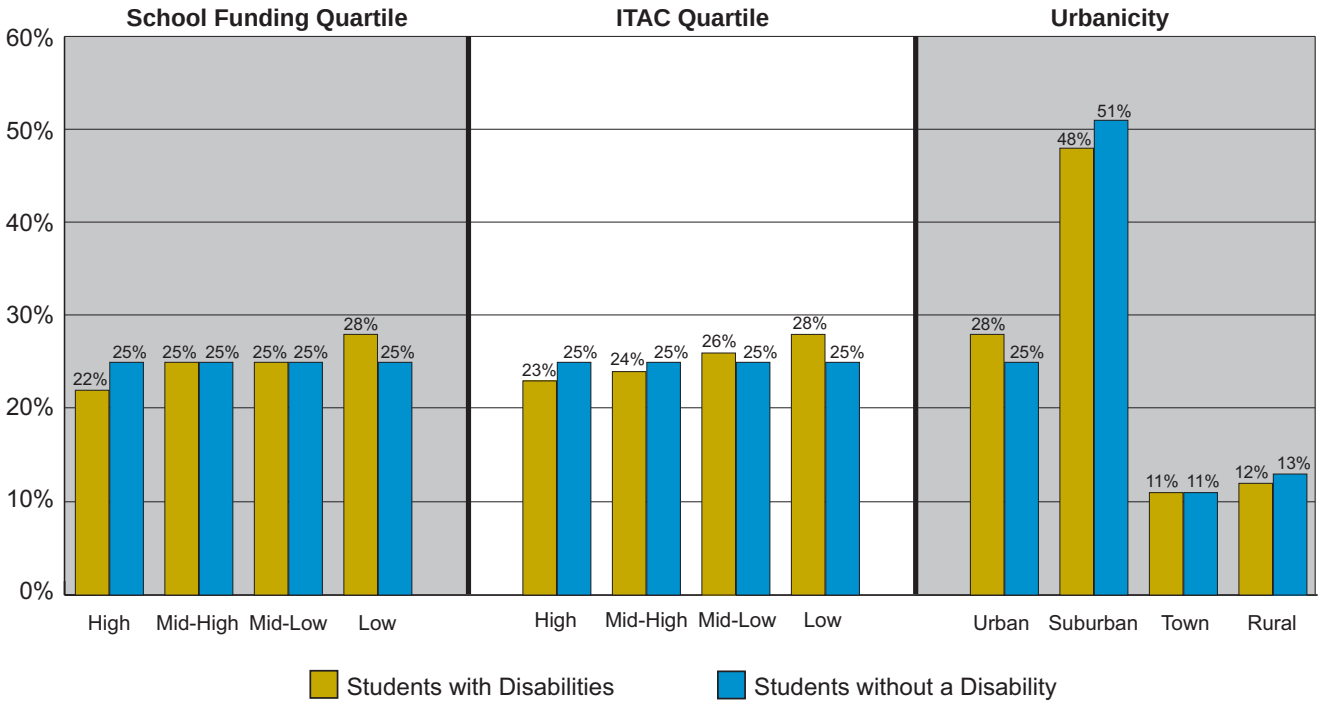
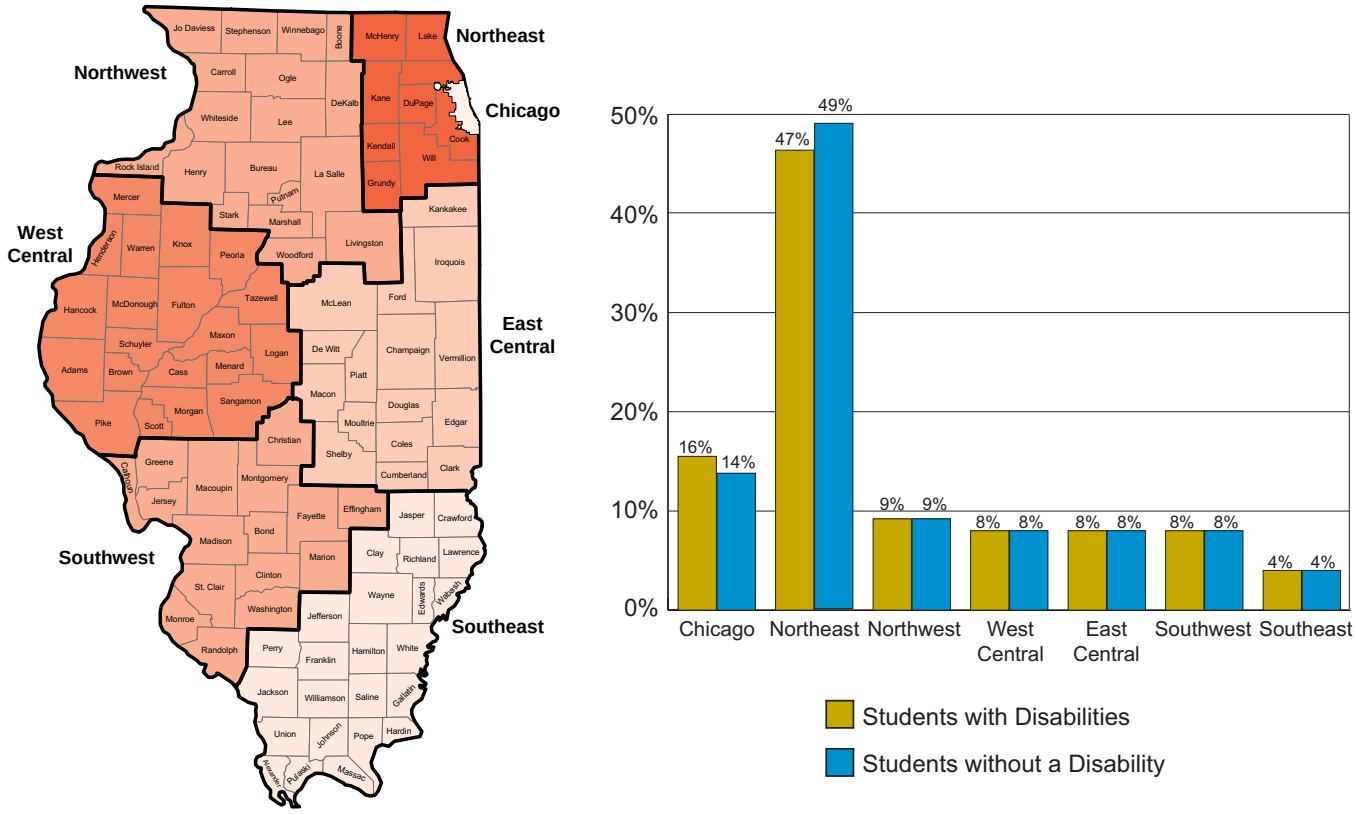


Figure 8. Regions and Student Disability Status



Enrollment

Overall

As illustrated on Table 2, in terms of the overall rate of postsecondary enrollment, students with disabilities had a 14 percentage point disadvantage compared with students without a disability (66% vs. 80%). Students with disabilities were significantly less likely to initially enroll at a four-year institution compared with students without a disability (18% vs. 38%). Furthermore, students with disabilities were slightly more likely (two percentage points) to initially enroll at a two-year institution and somewhat more likely (three percentage points) to delay their postsecondary enrollment; therefore, compared with students without a disability, students with disabilities were much more likely to have not yet enrolled at a postsecondary institution within the six-year study period (34% vs. 20%).

Among the students with disabilities, those within the other orthopedic and multiple disabilities categories were much more likely to enroll overall and at a four-year institution. In addition, students with multiple disabilities were just as likely to enroll at a four-year institution as students without a disability (38%). Students in the Blind/low vision category were least likely to have enrolled overall, least likely to have enrolled at a four-year institution, and most likely to have not yet enrolled in postsecondary education (41%). Students requiring wheelchair access were much more likely to delay their postsecondary enrollment relative other students with and without a disability. Among students with disabilities, those with ADD were most likely to enroll at a two-year institution, while the students requiring wheelchair access were least likely.

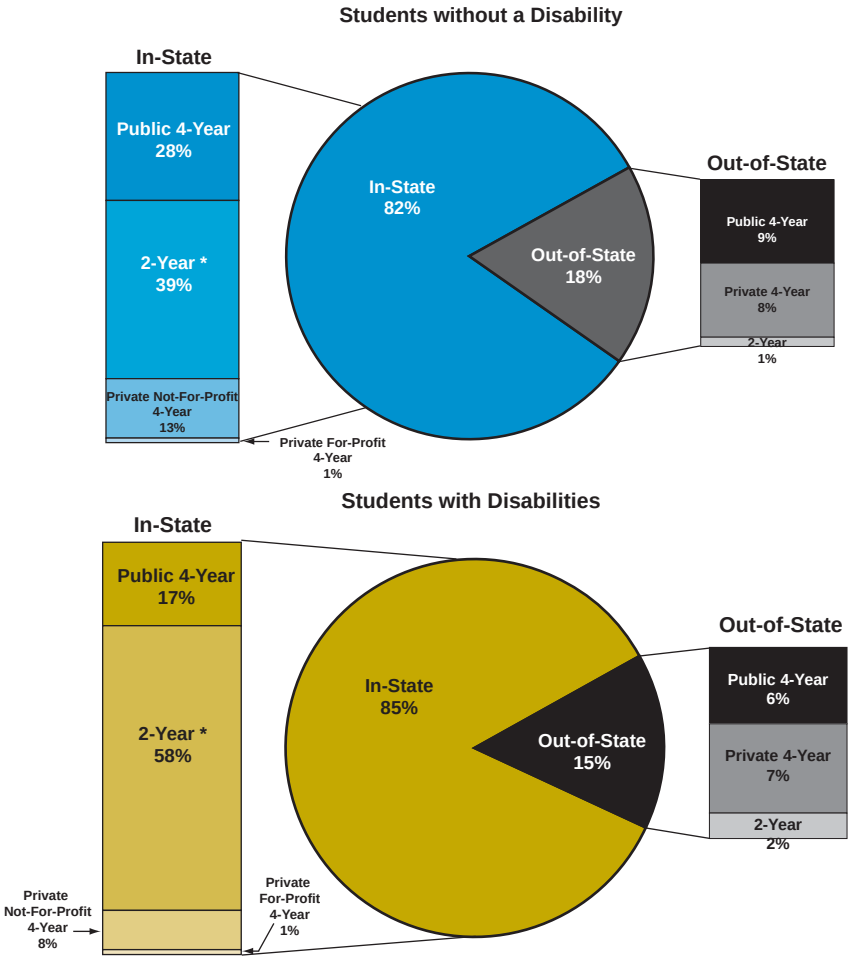
Table 2. Overall College Enrollment Status

			Enrolled in Postsecondary Education			
		Not Yet Enrolled	Delayed Enrollment	Initial 2-Year	Initial 4-Year	Total Enrolled
	N	23,629	19,397	28,875	41,234	89,506
Overall Cohort	113,135	21%	17%	26%	36%	79%
Students without a Disability	105,537	20%	17%	25%	38%	80%
Students with Disabilities	7,598	34%	20%	27%	18%	66%
Blind/low-vision	1,073	41%	19%	25%	14%	59%
Hearing	582	34%	19%	25%	22%	66%
Learning	1,857	37%	20%	28%	15%	63%
ADD	1,991	29%	21%	30%	20%	71%
Other Neurological	232	35%	23%	21%	21%	65%
Wheelchair Access	69	38%	32%	16%	15%	62%
Other Orthopedic	179	25%	19%	27%	29%	75%
Multiple	256	25%	15%	22%	38%	75%
Other	1,359	36%	22%	27%	16%	64%

Sector

There were significant differences between students with disabilities and those without a disability in terms of the sector of the institution in which they enrolled during the fall semester of 2002. As illustrated on Figure 9, a significantly higher proportion of college-going students with disabilities enrolled at an Illinois community college compared with students without a disability (58% vs. 39%). A significantly lower proportion of college-going students with disabilities enrolled at an Illinois public four-year institution relative to students without a disability (17% vs. 28%). A slightly lower proportion of college-going students with disabilities enrolled out-of-state when compared with students without a disability (15% vs. 18%). In terms of enrollment at in-state not-for-profit private institutions, a significantly lower proportion of students with disabilities enrolled at such institutions compared with students without a disability (8% vs. 13%). For both groups, nearly all students enrolling at a two-year institution did so within Illinois, as only two percent of college-going students with disabilities and one percent of students without a disability enrolled at an out-of-state two-year institution.

Figure 9. Initial Four-Year Enrollment by College Sector



* 97% of in-state two-year enrollment occurs at an Illinois community college.

Outcome Attainment

Bachelor's Completion among Four-Year Starters

It should be noted that the following information is conditional upon initially enrolling at a four-year institution in the fall semester of 2002. As shown on Table 3, students with disabilities had a significantly lower bachelor's completion rate at six years compared with students without a disability (53% vs. 68%); however, there was some variation between the disability subgroups and two of the subgroups had completion rates slightly higher than the students without a disability. Students in the other orthopedic (69%) and multiple disabilities (72%) categories had slightly higher bachelor's completion rates than students without a disability (68%). However, these results should be viewed with caution due to the small size of the previously mentioned disability subgroups.

It terms of the additional pipeline measures that determine what the students were doing at the end of the study if they did not earn a bachelor's degree, students with disabilities generally had a higher proportion still enrolled at both two-year and four-year institutions relative to students without a disability. This combined with generally lower bachelor's completion rates suggest that students with disabilities are less likely to earn a bachelor's degree and are taking longer to earn degrees when they do (see Figure 10). Concerning cumulative bachelor's completion rates at four-, five-, and six-years, the students with disabilities were between 15 and 16 percentage points lower at those key intervals relative to students without a disability.

Figure 10. Bachelor's Completion Rate by Student Disability Status

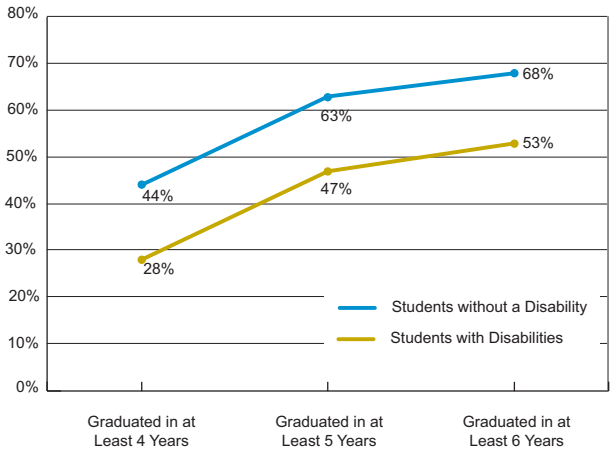


Table 3. Outcomes for 2002 Four-Year Starters

			Did Not Obtain Bachelor's in 6 Years (Spring 08 Status)		
	Total Initial 4-Yr Enrollment	Graduated in at Least 6 Years	Enrolled at a 4-Year Institution	Enrolled at at 2-Year Institution	Not Enrolled
	N	1,863	2,760	1,300	9,537
Overall Cohort	41,234	67%	7%	3%	23%
Students without a Disability	39,861	68%	7%	3%	23%
Students with Disabilities	1,373	53%	9%	4%	34%
Blind/low-vision	155	48%	*	*	*
Hearing	128	60%	*	*	*
Learning	271	54%	10%	5%	31%
ADD	399	46%	9%	6%	40%
Other Neurological	48	35%	*	*	*
Wheelchair Access	10	*	*	*	*
Other Orthopedic	51	69%	*	*	*
Multiple	97	72%	*	*	*
Other	214	54%	*	*	*

* Indicates cell size of less than 10 or a related cell had a cell size less than 10.

Outcomes at Two-Year Institutions among Two-Year Starters

Among the students with disabilities initially enrolling at a two-year institution, only 37% had obtained one or more of the three outcomes before the end of the study (see Table 4); this was 15 percentage points lower than students without a disability. However, students in the other orthopedic category (55%) did slightly better than the students without a disability. On the other hand, students with a learning disability had the lowest overall rate of two-year outcome attainment at 32%. Once again, these results should be viewed with caution due to the small size of some of the disability subgroups.

Overall, students with disabilities had the same certificate completion rate as students without a disability (6%); however, there were differences among the various disability subgroups. Concerning associate's degrees, students with disabilities had an 11 percentage point lower rate of completion compared with students without a disability (16% vs. 27%). Students with disabilities were 33% less likely—13 percentage points less—to transfer to a four-year institution compared with students without a disability (26% vs. 39%).

Table 4. Outcomes for 2002 Two-Year Starters

	Total Initial 2-Yr Enrollment	2-Yr Outcome Obtained[1]	Outcome(s) Met[2]			Outcome Unknown/ Unmet
			Certificate	Associate's	Transfer to 4-Yr	
	N	14,665	1,712	7,472	11,046	14,210
Overall Cohort	28,875	51%	6%	26%	38%	49%
Students without a Disability	26,803	52%	6%	27%	39%	48%
Students with Disabilities	2,072	37%	6%	16%	26%	63%
Blind/low-vision	273	37%	5%	17%	27%	63%
Hearing	144	44%	9%	18%	33%	56%
Learning	525	32%	6%	15%	20%	68%
ADD	597	36%	5%	15%	27%	64%
Other Neurological	49	37%	*	*	*	*
Wheelchair Access	11	*	*	*	*	*
Other Orthopedic	49	55%	*	*	*	*
Multiple	56	50%	*	*	*	*
Other	368	37%	6%	17%	26%	63%

[1] Outcome is earning a certificate or associate's or transfer to a four-year institution.
[2] Students can achieve more than one outcome, percentage can add up to more than total for two-year outcome obtained.
* Indicates cell size of less than 10 or a related cell had a cell size less than 10.

Table 5. Two-Year to Four-Year Transfer

			Did Not Obtain Bachelor's in 6 Years (Spring 08 Status)		
	Total 2-4 Year Transfer	Graduated in at Least 6 Years	Enrolled at a 4-Yr Institution	Enrolled at a 2-Yr Institution	Not Enrolled
	N	1,397	2,461	369	2,248
Overall Cohort	11,076	54%	22%	3%	20%
Students without a Disability	10,536	55%	22%	3%	20%
Students with Disabilities	540	44%	26%	5%	26%
Blind/low-vision	73	45%	*	*	*
Hearing	48	46%	*	*	*
Learning	105	37%	*	*	*
ADD	160	41%	*	*	*
Other Neurological	15	*	*	*	*
Wheelchair Access	*	*	*	*	*
Other Orthopedic	18	*	*	*	*
Multiple	23	*	*	*	*
Other	94	46%	*	*	*

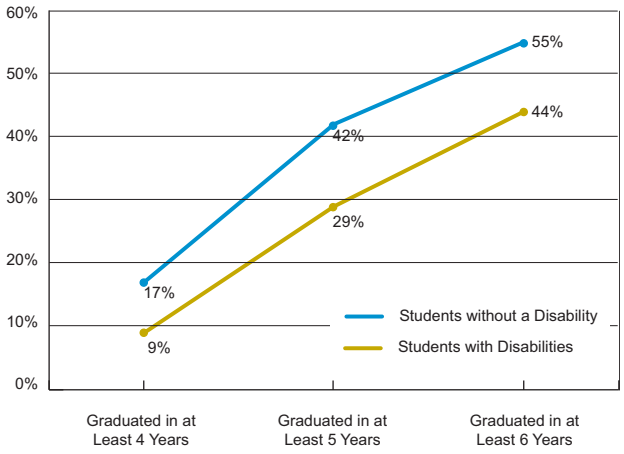
* Indicates cell size of less than 10 or a related cell had a cell size less than 10.

Slightly more than a quarter (27%, see Table 2) of students with disabilities initially enrolled at a two-year institution and slightly more than a quarter (26%) of those students eventually transferred to a four-year institution.

Of the 540 students with disabilities who initially enrolled at a two-year institution and subsequently transferred to a four-year institution, only 44% earned a bachelor's degree by the end of the study (see Table 5). This was 11 percentage points less than the bachelor's completion rate of students without a disability. In terms of the pipeline measures for those not completing a bachelor's degree, a slightly higher percentage of students with disabilities were still enrolled at a four-year institution (26% vs. 22%) or at a two-year institution (5% vs. 3%). However, this could not make up for the six percentage point disadvantage for students with disabilities concerning the proportion not yet enrolled by the end of the study (26% vs. 20% for students without a disability).

It should be noted that the difference between the students with disabilities and students without a disability regarding cumulative bachelor's completion rates was also evident at the four-year and five-year intervals. As illustrated on Figure 11, the students with disabilities had an eight percentage point disadvantage at year four, a 13 percentage point disadvantage at year five, and as previously stated, an 11 percentage point disadvantage at the end of the study.

Figure 11. Bachelor's Completion Rate for Two-Year to Four-Year Transfers by Disability Status



DISCUSSION

Differences between Students with Disabilities and Students without a Disability

Regarding the comparison of students with disabilities and students without a disability in terms of demographic characteristics, students with disabilities were significantly more likely to be: male, within one of the non-Asian minority groups, and from families with limited financial resources. Concerning academic characteristics, students with disabilities were significantly less likely to: be well-prepared for college (as measured by the IERC college readiness index), have participated in a college prep program, and have taken three or more years of mathematics. However, students with disabilities were somewhat more likely to have earned college credit during high school; this could be due to a higher proportion of students with disabilities participating in CTE programs, as CTE programs sometimes offer dual-credit options in which students simultaneously earn high school and college credit. In terms of school characteristics, students with disabilities were slightly more likely to be from urban areas—coincidentally, a higher proportion were also from the Chicago region—and to be from schools in the low funding and low teacher academic capital quartiles. Based on the demographic and academic characteristics of students with disabilities and some of the overall characteristics of their respective high schools, one would expect a lower likelihood of postsecondary enrollment and degree completion relative to students without a disability.

In a recent study (Smalley, Lichtenberger, & Brown, 2010) that included the same cohort and almost all of the same student and high school characteristics as the current study, students with disabilities were significantly less likely to initially enroll at a four-year institution. Furthermore, among four-year starters, students with disabilities were significantly less likely to complete a bachelor's degree. These statistically significant differences between the students with disabilities and students without a disability were evident despite holding all other student and high school characteristics constant.

Enrollment

The postsecondary enrollment patterns of students with disabilities were generally different from those of students without a disability, as students with disabilities were significantly less likely to enroll in postsecondary education overall and slightly more likely to delay their postsecondary enrollment. More notably, students with disabilities who initially enrolled in postsecondary education during the fall semester of 2002 were significantly more likely to do so at a two-year institution rather than a four-year institution while the opposite was true for students without a disability. Despite the disparities between the two groups, it should be noted that a large proportion (almost two-thirds) of students with disabilities from the Class of 2002 had enrolled at a post-secondary institution for at least one semester before the end of the study.

Sector Differences

The sector enrollment patterns varied greatly between the college-going students with disabilities and students without a disability. The sector differences suggested that students with disabilities were more likely to stay close to home. Among those enrolling, students with disabilities were slightly more likely to enroll in-state relative to students without a disability. Focusing on in-state enrollment, the students with disabilities were significantly more likely to enroll at an Illinois community college, and were much less likely to enroll at a public four-year institution or a private not-for-profit institution when compared with students without a disability.

Bachelor's Completion

Although more than half (53%) of students with disabilities who initially enrolled at a four-year institution had earned a bachelor's degree by the end of the study, their bachelor's completion rate was significantly lower than that of students without a disability (68%). On the positive side, a slightly higher proportion of students with disabilities were still enrolled at either a two-year or a four-year institution at the end of the study.

In a study specific to the University of Illinois at Urbana–Champaign (UIUC) that examined the

retention and degree completion rates of students across multiple cohorts who were registered with the University's Disability Resources and Educational Services (DRES), it was found that such students have nearly the same bachelor's completion rate (78.1%) as students without a disability (78.8%), however, students with disabilities required more time to complete (Marshall & Cullen, 2004). This pattern differed from the current study, as students with disabilities had a significantly lower rate of bachelor's completion coupled with a significantly longer time to degree completion relative to students without a disability. It should be noted that the graduation rate at UIUC is significantly higher than the state-wide average and this highly selective institution has a disability blind admissions policy, so as the authors stated "the rate for students with disabilities should be higher as well" (p. 20). Also, the current study included all students with disabilities and not just those receiving disability support services, as in the UIUC study.

Outcomes at Two-Year Institutions

Students with disabilities also had lower rates of attaining one or more of the outcomes at a two-year institution—among students initially enrolling at a two-year institution. Students with disabilities had the same rate of certificate completion but significantly lower rates of associate's degree completion and two-year to four-year transfer relative to students without a disability. This is somewhat disconcerting as more than half (58%) of college-going students with disabilities enrolled at a two-year institution.

Differences in Enrollment and Outcome Attainment between Students in the Various Disability Subgroups

In terms of the postsecondary outcomes there were differences between the students within the various disability subgroups. Students in the other orthopedic and multiple disability categories had the highest rates of overall postsecondary enrollment and initial enrollment at a four-year institution. Furthermore, the advantage in terms of the enrollment rates also carried over into outcome attainment at four-year institutions. Among students with disabilities who were four-year starters, students in the other orthopedic and multiple disabilities categories had the highest rates of bachelor degree completion. Also, among the two-year starters they had the highest rates of attaining one or more of the two-year outcomes (certificate completion, associate's completion, transferring to a four-year). However, it should be noted that the size of both of the aforementioned disability subgroups was somewhat small in terms of the number of two-year and four-year starters, so the results related to bachelor's completion and outcome attainment at two-year institutions should be viewed with caution.

Recommendations for Further Investigation

- Analyzing employment outcomes for all students with disabilities, college-going and not college-going alike. In doing this, it can be determined if there are employers in key industries that are more likely to hire students with disabilities and provide them with opportunities for career advancement. This will will help to determine the importance of degree attainment for students with disabilities in terms of improved employment outcomes.

- Conducting a qualitative study, perhaps using focus groups, to better determine what is related to the college success of students with disabilities. For example, are successful college-going students with disabilities more likely to receive disability support services from their respective postsecondary institution? Furthermore, what are some of the characteristics of those support service programs leading to the increased likelihood of success? Also, is success related to the how soon after initial enrollment the services are sought and the frequency in which the services are received?

- Determining the impact of select characteristics of the postsecondary institutions in which the students with disabilities enrolled on bachelor's degree completion, namely the sector and selectivity of those institutions. Additionally, exploring how those institutional characteristics interact with student characteristics, particularly the alignment between student college readiness and the selectivity of a student's given institution.

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