College Career Connection: A Study of Youth with Intellectual Disabilities and the Impact of Postsecondary Education

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Abstract: Participation in postsecondary education is a known predictor of a successful employment outcome for youth without disabilities. There is research documenting that this is true for youth with disabilities as well. Most literature on postsecondary education for youth with disabilities focuses on individuals with learning disabilities, attention deficit disorders, and physical or sensory disorders. There is limited research that addresses youth with intellectual disabilities regarding successful outcomes of participation in postsecondary education. This paper presents findings from a matched cohort follow-up study conducted with 40 youth with significant disabilities who did and did not participate in postsecondary education. Recommendations for future research and practice are provided.

Postsecondary education has become an increasingly important prerequisite to independent adult living. While 78% of high school graduates enter into some type of postsecondary education, the same is true for only 37% of those with disabilities (Blackorby & Wagner, 1996; Wittenburg, Fishman, Golden, & Allen, 2000). Students with significant disabilities, ages 18-22 years, frequently remain in special education programs on their high school campus while their non-disabled peers move on. Yet, information regarding individuals with significant disabilities who use the vocational rehabilitation (VR) system shows that participation in postsecondary education correlates with competitive, rather than sheltered, employment (Gilmore, Schuster, Zafft, & Hart, 2001).

Completion of nearly any type of postsecondary education significantly improves an individual's chances of securing meaningful employment, one of the hallmarks of successful adult life (Gilion, 1996; National Council on Disability and Social Security Administration, 2000). For students with disabilities, postsecondary education results in a higher overall level of employment (Getzel, Stodden, & Briel, 1999). National data on individuals with disabilities who receive services through their state VR system enabling them to obtain postsecondary education indicate higher earnings over time than for their counterparts with no such experience (Gilmore, Bose, & Hart, 2001).

Although rates of participation in postsecondary education are low for students with significant disabilities, there has been a consistent effort to include youth, aged 18 and older, in age-appropriate educational settings (Fisher & Sax, 1999). Neubert, Moon, Grigal, and Redd (2001) conducted a review of the literature on postsecondary education for youth with intellectual disabilities, but found a limited amount of information on the topic. Their search, however, revealed a change in the type of participation in postsecondary education, over time, for students with signifi-
cant disabilities. There was a move from substantially separate programs, housed on college campuses in the 1970s and 1980s, to an individual support model, as described by Page and Chadsey-Rusch (1995), designed to provide inclusive participation in typical college activities, beginning in the 1990s. Neubert et al. noted that the focus on transition planning supported by the Individuals with Disabilities Education Act (IDEA) of 1990 and the IDEA Amendments of 1997 increased awareness of the need to plan for multiple outcomes, including postsecondary education, for students with significant disabilities.

In addition, in 1995, the Board of Directors of the Division on Mental Retardation and Developmental Disabilities of the Council for Exceptional Children recommended that students who require educational services beyond their eighteenth birthday be allowed to graduate with their peers and continue their education in age-appropriate settings, such as college campuses, until age 22. This is an important endorsement, considering that youth with significant disabilities comprise 24% of all students with disabilities who are served under IDEA (Blackorby & Wagner, 1996).

The review by Neubert et al. (2001) also revealed a striking lack of evaluative data on effects of participation, in any type of postsecondary education model, by individuals with significant disabilities. The study described here represents an attempt to address this.

Description of the Model

The College Career Connection (CCC) was a model demonstration project, funded from 1998 to 2001, by the Department of Education, Office of Special Education Programs, and developed by the Institute for Community Inclusion (ICI). CCC was designed to assist students with significant intellectual disabilities (e.g., mental retardation and autism) to choose, gain admission to, and successfully complete an inclusive postsecondary educational experience at their local community colleges. The target project population was high school students, ages 18-22, from five diverse, urban school districts in the Commonwealth of Massachusetts. This summary presents findings of a matched cohort study of 40 students, 20 who participated in postsec-

Presentation of the Model

In 1998, the ICI developed partnerships with five urban high schools and their local colleges. The primary purpose of these affiliations was to improve adult outcomes for students with significant disabilities by improving access to postsecondary education options traditionally unavailable to them. The project was designed around "promising practices" similar to those outlined by the National Transition Alliance (Kohler & Chapman, 1999). Practices included using a student-centered framework to identify students' strengths and preferences and developing a collaborative interagency team ("Student Support Team") that used an informal resource mapping process to develop individual services and supports for students who had expressed an interest in postsecondary education.

Criteria for selecting school districts for project participation were geographic distribution, diversity of student population, and interest in developing innovative services and supports for students with significant disabilities who were preparing for adult life. Another common feature across each of the five high schools was the reliance on substantially separate life skills classrooms for students with significant disabilities. Vocational education within these life skills settings ranged from no employment or training options to short-term rotations through established work experience sites (e.g., discount clothing stores, housekeeping arrangements, and fast food restaurants). The work experiences were unrelated to student choices or preferences and generally not available to students upon graduation. Typically, students exited school and ended up with one of three options: a day habilitation program, a sheltered workshop slot, or a waiting list for adult services. In all cases, postsecondary education options were not viewed as a possibility for students and, therefore, no encouragement or supports...
were provided to set, let alone reach, postsecondary education goals.

The CCC model was designed to take into account the unique characteristics of all participants, including their aspirations for the future, family wishes, and cultural background. The model was based on five guiding principles: (a) individual student vision set the direction and controlled decision-making, (b) all options explored with students were inclusive and occurred in settings that reflected a natural proportion of students with and without disabilities, (c) there were no special programs or specially designated classes (i.e., segregated classes or course sequences just for students with disabilities), (d) the development of supports emphasized individual needs and preferences rather than "one size fits all," and (e) collaboration among systems was necessary for an effective process.

**Evaluation of Model Effectiveness**

Evaluation strategies were instituted to ensure the effectiveness of the key elements of the project. Beginning with the individual student, each student participated in person-centered planning and was encouraged to update his or her plan as needed to keep project activities aligned with his or her emerging vision. Each student had an opportunity to discuss his or her individual interests and needs with the interagency Student Support Team (SST). The SSTs were encouraged to set goals and benchmarks for each academic year and to take time to evaluate progress, particularly in regard to project principles. In addition, a statewide project advisory committee was convened three times a year to guide and evaluate project activities and to assist project staff in addressing emerging barriers in a systematic fashion. Evaluation methods used by the project included focus groups of students and parents, semi-structured interviews of students, parents, college faculty, and Disability Services Office staff, tracking student outcomes, use of meeting evaluation forms, and an effectiveness survey. Results presented here are from an analysis of a matched cohort follow-up survey conducted in December 2001.

**Effectiveness Survey**

Since a review of existing instruments did not uncover a match-up with the unique features of the project, a survey was developed to focus on items of relevant interest to project staff (contact the first author for a copy of the survey). The survey consisted of 21 questions and was administered to all students ($N = 40$). Questions addressed descriptive/identifying information, participation in postsecondary education, and/or participation in work. Six open-response questions served to gather details on coursework, job titles, and accommodations, where applicable. Three additional questions, regarding accommodations received in high school and college, were administered to the students participating in postsecondary education.

**Results**

Survey results indicated statistical significance for the following relationships:

1. Participation in postsecondary education correlated positively with two employment variables, competitive and independent employment;
2. Students who participated in postsecondary education worked fewer total hours per week in paid employment than their peers without postsecondary education experience on a "part-time school and part-time work" schedule;
3. Students who participated in postsecondary education used more accommodations and more types of accommodations in college than they did in high school;
4. Students who participated in postsecondary education were more likely to receive a high school diploma. (At the time of the project, the high school with the most students in the study awarded high school diplomas to students who participated in the life skills program. This practice has been discontinued due to the full adoption of a statewide high-stakes assessment, requiring passage of the tenth grade test to be eligible for a state approved diploma.); and
Sixteen of the 20 students who participated in postsecondary education chose to continue on at college after completing their first class.

The following sections provide descriptive information on characteristics of the students sampled including: (a) age, (b) gender, (c) ethnicity/race, (d) languages spoken at home, (e) disability type, and (f) type of educational program. A description of important variables regarding graduation from high school, persistence in postsecondary education, employment outcomes, and class-career match follows. The final section compares academic accommodations received in high school and college for students who participated in postsecondary education.

Sample Profile

In regard to sample characteristics, there was a statistical match between the two student samples for age, gender, ethnicity, school/district, and disability. Average age for individuals participating in college was 20 years, while the average age for students not participating in postsecondary education was 19 years. Nine males and 11 females participated in postsecondary education, while 12 males and eight females did not. The ethnicity/race of students participating in postsecondary education showed that 55% were Caucasian, 25% were African American, 10% were Hispanic/Latino, 5% were Asian/Pacific Islander, and 5% were other. Of students not participating in postsecondary education, 37% were Caucasian, 26% were African American, 16% were Hispanic/Latino, 5% were American Indian/Alaskan Native, and 16% were other. About 25% of both samples came from linguistically diverse backgrounds.

High school special educators identified all participating students as individuals with significant intellectual disabilities and all students, upon exiting high school, were referred for continuation of services to the adult service system. All students participated in substantially separate academic programs during all or most of their high school years, with most students planning to remain in high school until age 22. Of the students who participated in postsecondary education, 17 participated in life skills programs in high school and three participated in resource room settings. The matched cohort had a similar distribution.

Important Variables

Of the students who participated in postsecondary education, 16 had exited high school by the time of the survey. Of those, three graduated with standard high school diplomas, 12 graduated having met their special education goals, and one student received a certificate of attendance. For students without postsecondary education experience, seven had exited high school, four with special education diplomas and three with certificates of attendance. The school system contributing the most students to the study awarded high school diplomas to students from the life skills program, while other school districts did not.

Of the students who participated in postsecondary education, three students stopped after one course, two students stopped after two courses, and, at time of the survey, the remaining 15 students had continued for up to four semesters. College courses were taken for credit or audit, depending on student preference, with three students participating in non-credit courses through the college's continuing education department. Five of the 20 students began by taking a course for credit while the remainder audited or took non-credit courses. Two of the students began with somewhat atypical college course offerings; a one-credit Web Surfing course, and a two-credit Animal Grooming course.

For employment variables, statistical significance was found between the two student groups regarding competitive versus sheltered employment. Comparing work settings, all students with postsecondary education experience who were working were in competitive employment, compared to 43% of students without postsecondary education who were working. Furthermore, 67% of the students with postsecondary education working in competitive employment used no work-related supports (e.g., job coach), compared to 29% of students with no postsecondary educational experience. (See below: Qualitative Hypothesis Test Summary). In addition, no student with postsecondary education experience worked...
at a pay rate below $6.75 per hour, while two students from the group without postsecondary education were doing piece work generating a pay rate of $.50 per hour and $4.10 per hour, respectively. One student who did not participate in postsecondary education earned $10 per hour in a housekeeping position.

Other employment indicators appeared consistent between the two groups, with one exception. Students not participating in postsecondary education worked more hours per week, with a mean of 23 hours per week for students not participating in postsecondary education and 13 hours per week for students in postsecondary education. Job benefits, duration of time in employment, and socialization with co-workers (measured as eating lunch together, communicating by phone during non-work hours, and getting together outside of work hours) showed no significant difference between the two groups of students.

Open-ended questions related to choice of college classes and career aspirations showed a strong correlation, one of the positive effects of a person-centered approach. For example, several students were interested in computer-related careers in business or information technology and took related classes, such as Introduction to Computers for Business. A student interested in creating his own Web Page took Surfing the Net and Web Design, each a one-credit introductory course. A student interested in pet care took Pet Grooming I and II then interned at her professor's kennel. She was hired to continue on at the kennel after her internship. Another student interested in coaching basketball took First Aid and Physical Safety, a course including certifications required for working in most athletic settings. The student then went on to work in an after-school sports program for 5th and 6th graders.

Accommodations

Finally, as part of the study, students who participated in postsecondary education were read a list of accommodations to identify those that they used in high school and those used in college (see Table 1). The list included 16 possible accommodations (e.g., extended time for testing, readers and scribes).

Table 1

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>High School</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given extra time to take tests?</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Test read to you?</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Work/test in a quiet place?</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Use specialized software programs?</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Had someone who took notes or read for you?</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Instruction by a tutor?</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Use a scribe?</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Given priority registration and course scheduling?</td>
<td>1 (not available)</td>
<td></td>
</tr>
<tr>
<td>Interpreter/translator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enlarged print</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Brailed materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading materials on tape</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Auditory information printed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recording of lecture</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Class relocated</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Specialized seating in class</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Did not use an accommodation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (small class)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1 (aide)</td>
<td>13 (educational coach)</td>
</tr>
</tbody>
</table>

N = 19
and an "other" category, so that students could identify any accommodations not on the list. Students were more likely to use academic accommodations and a wider variety of accommodations in postsecondary settings than in high school. One student was offered academic accommodations in high school and postsecondary school and declined use in both settings. Of the 19 students using academic accommodations, four students reported using no academic accommodations in high school while 15 students used accommodations in both settings. Half of the students who used accommodations in high school reported using one or two accommodations, those being extra time for tests, tests in a quiet location, or having the test read aloud. These same students used five to seven accommodations in college, including accommodations for testing, tutoring, note taking; a scribe specialized in computer software, and educational coaching (see Table 1).

**Quantitative Hypothesis Test Summary**

Data was collected from 40 students to measure the effectiveness of postsecondary education on areas of employment, including: number of hours worked each week, hourly pay rate, length of time on current job, benefits received, type of work setting (competitive or sheltered), work with or without supports (e.g., job coach), assistance in finding work, and socialization with fellow employees. The following relationships were found: (a) students with postsecondary education experience were more likely to be employed in competitive work than in sheltered employment (Chi-square = 5.29, df = 1, p = .021) and (b) students who participated in postsecondary education and who were engaged in competitive employment were less likely to need employment supports (Chi-square = 5.12, df = 5, p = .402), compared to their counterparts without postsecondary education. It should be noted that the small sample size impacts testing and generalization of results.

**Discussion**

In looking at data presented, it is important to consider outcomes. This study captured data for 40 young adults as they moved into adult life. Though the small sample underscores the need to be cautious about overstating findings or stating claims for wide-scale application, the outcomes highlight the importance of postsecondary education for a population often denied this opportunity. Postsecondary education provides a way for young adults with significant disabilities to increase their likelihood of gaining competitive employment. Results noted here regarding the connection between postsecondary education and competitive employment mirror the findings from national vocational rehabilitation data (Gilmour et al., 2001). Therefore, the first point to be drawn is that postsecondary education can help secure a link to competitive employment.

Although postsecondary education may increase the cost of the transition process, particularly where agencies do not develop a collaborative infrastructure of service delivery to maximize transition dollars, students participating in postsecondary education are less likely to need on-going supports as they move onto their lives as employees. This is an important savings, especially for non-education agencies, which might encourage collaboration across adult service systems.

Coordinating resources for a postsecondary education is a complex matter. Overlapping and conflicting regulations and services often hamper the transition process of youth with significant disabilities (Stodden, 1998). The College Career Connection required extensive collaboration among agencies and institutions and all students used resources in unique ways. For example, tuition was paid by one of four mechanisms: through a small grant from the Department of Mental Retardation (DMR), by a tuition waiver from the state vocational rehabilitation system, through a mini-grant from a non-profit organization which the student applied for directly, or by the student's high school. Students who eventually exited from high school with a high school diploma could apply for federal student financial aid. Students who exited without a high school diploma were not eligible for financial aid and continued to use small pockets of funds available through DMR flexible funding or from student and family financial resources. Several students investigated using SSI Work Incentives as a way to reach their employment-related educational needs.
Another point to be made, therefore, is that resource development is an important and complex process that should fall on more shoulders than just those of the student and family. Individuals and organizations have a role to play in the complex process of resource development and alignment.

Along with coordination of services and supports is the issue of gaps in services and supports. Many of the students in the project worked with an educational coach who attended class, served as note-taker and tutor, and helped the student access the full range of campus resources (e.g., learning center, library, cafeteria, gym, and bookstore). Educational coaches typically are considered a "personal service" and not an academic accommodation that is provided by colleges. Therefore, after high school, students and their families were responsible for finding, supervising, and paying a coach. Most students, through participation in the CCC model, were able to access the college support system independently, but some students continued to need an educational coach to be successful. Identifying and closing these gaps in services and the funding of services is crucial if youth with significant disabilities are to be successful.

Students with significant disabilities were successful in college. A contributing factor to this success is that, once they reached a college environment, participating students used a wide variety of academic accommodations that they had tended not to need or use in high school. It may be that if these students had been offered access to the general education curriculum while in high school, they might have needed a wider array of accommodations than their functional life skills curriculum required. Additionally, as can be seen by the survey of accommodations, students with significant disabilities rarely used assistive technology as an academic support, in either high school or college settings. This suggests that a broader, more in-depth use of different kinds of accommodations in high school might help prepare students with intellectual disabilities to use technology that is widely available in colleges.

Employment, though important, is just one area of concern for youth and their families. In comparison, postsecondary institutions are places where people not only learn skills and ideas, but also form values and attitudes that have an important impact on their quality of life (Roeher Institute, 1996). Postsecondary educational institutions need well-researched and effective strategies and methods to address the needs of a wider range of learners, so that more individuals with disabilities can benefit from the formation of new values and broader attitudes and, therefore, enjoy a better quality of life.

A final point of discussion more anecdotal in nature, is the increase in positive perceptions and raised expectations by teachers, parents, and perspective employers, about the individual who has "been to college." First and foremost, a person who is taking even one course is considered to be a "college student," rather than merely a student with a disability. As an individual's status improves, so does the attitude of others. Thus, participation in postsecondary education holds the promise of breaking the pattern of low expectations for students with significant disabilities.

Further Research

The transition period is complex, requiring thoughtful, flexible, and tested models that support individuals with significant disabilities in achieving a productive life based on options of their choosing. It is particularly troubling to see young people working many hours a week for extremely low pay and no benefits; therefore, there is a moral imperative that rests upon the research community to closely examine ways to support successful transition. Recommendations for further research include:

(1) Updating, organizing, and expanding the data on models linking high school students with significant disabilities to postsecondary education;
(2) Expanding the model and broadening the range of students who participate to include a wider range of students, such as those considered "at risk" of dropping out of high school and students with emotional/behavioral disabilities;
(3) Examining the various practices to create collaboration between individual youth, families, One-Stop career cen-
ters, and adult service organizations using strategies such as cross-agency re-
source alignment to develop a transition youth infrastructure to address ser-
dvice gaps and needs;
(4) Identifying effective, integrated service coordination models for students, fam-
ilies, educators, and adult human service organizations;
(5) Researching the total student experience in postsecondary education to
identify the nature of intellectual and social growth for youth with disabilities
including significant disabilities;
(6) Identifying how a college experience raises expectations of teachers, parents,
and perspective employers for students with significant disabilities; and
(7) Exploring the nature and use of accommodations by students, especially assist-
technology, as they transition from high school to college.

Conclusion

As with much of research, results described here raise more questions. Some information
reviewed in this report reinforces “promising practices” that are being supported in school
systems already. These practices include:

(1) Encouraging students to develop robust visions of their future;
(2) Helping students to keep their options open through participation in typical
college-preparatory activities (e.g., college information night, college visits,
and orientation);
(3) Ensuring that students include a goal for pursuing postsecondary education
in their IEP; noted by Wagner and Blackorby (1996) as a practice that in-
creases the likelihood, all else being equal, that students will enroll in col-
lege;
(4) Creating greater access to the general curriculum through use of a broad
range of accommodations; including note-takers, assistive technology, and
universal design strategies, while in high school;
(5) Connecting students to postsecondary education before they leave high
school (e.g., dual enrollment), through models that form a bridge to the adult
community of school and work; and,
(6) Integrating evidence-based practices that support youth with intellectual disabil-
dities in gaining access to and progressing in postsecondary education into
professional development and personnel preparation programs.

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