Examining the Career Paths and Transition Services of Students with Disabilities Exiting High School

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Abstract: Career paths and transition services were investigated for students with disabilities who were exiting special education for comparison with two models of transition developed by Siegel (1998) and Greene (2003). Teachers and parent-mentors from 52 local education agencies (LEAs) conducted a record review and an exit interview of 741 students with disabilities in their final year of high school. An SPSS two-step cluster analysis was used to group these students according to twenty-four variables relating to their postschool goals, secondary education services, and level of performance on proficiency tests. A Tamhane’s post-hoc analysis was used to identify the variables that were significantly different for each of seven identified clusters. These clusters resembled the career paths identified by Greene and had some elements in common with the transition intensity model developed by Siegel. The authors suggest that both transition intensity and career paths are key aspects of transition systems.

Seven years after Madeleine Will (1983) developed her conceptual model of how to support students with disabilities in their transition to adulthood, Halpern (1990) noted that this model represented “old wine in new bottles” starting with the work study programs of the 1960s and the career education programs of the late 70s. Will’s transition initiative has undergone a similar “re-bottling” over the past two decades. When transition was first conceptualized, it was defined in terms of the need for overlapping supports and linkages between school and the world of work. Will identified three levels of transition services—no special supports, time-limited supports, and ongoing supports. This model was expanded by Halpern (1985) to include linkages to interpersonal adjustment and residential outcomes.

Transition policy shifted considerably in the 1990s due, in part, to policy research that identified a disconnect between transition services and the rest of the curriculum (Stodden & Leake, 1994). This led prominent researchers in the field of transition to call for a “transition perspective of education” (Kohler, 1998). This shift toward a curricular focus was mirrored in the IDEA of 1997 which required both a statement of needed transition services focused on postschool outcomes and a statement of transition service needs focused on a student’s secondary course of study. The IDEA of 2004 moved transition more significantly toward a curricular focus by defining transition services as a coordinated set of activities “focused on improving the academic and functional achievement of the child with a disability to facilitate the child’s movement from school to postschool activities” [H.R. 1350 § 602 (34)].

This shift in the definition of transition services has been portrayed in both a positive and negative light. Some policy-makers have maintained that focusing transition services on improving the academic and functional achievement of students with disabilities would promote higher expectations, improve educational opportunities, encourage better teaching, and increase accountability; and that the consequent improvement of student achievement would lead to better postschool outcomes (deFur, 2002). Others have argued that this change in focus was a return to remedial academics and that progress in the general curriculum was not enough to move students with disabilities into meaningful postschool

Since the IDEA of 1997, transition advocates have tried to unify curriculum focused models of transition with earlier linkage and support models. Siegel (1998) developed a model that considered both the intensity of transition supports and the curricular needs of secondary students with disabilities. This model focused on the general curriculum as defined by the School-to-Work Opportunities Act (STWOA) of 1994, which included work-based learning, school-based learning, and connections to meaningful adult activities. By choosing the STWOA as his model for the general curriculum, Siegel questioned the value of focusing transition on a strict academic curriculum “that at best produces a 20 percent college graduation rate” (p. 149). His model identified five levels of transition intensity tailored to the needs of five distinct groups of students: (a) average to high achieving students from high income families, (b) average to high achieving students from low income families, (c) low to average academic students, (d) students at moderate risk of unemployment and underemployment, and (e) students at high risk of unemployment and underemployment due to severe disabilities and/or challenging behaviors.

Greene (2003) developed a model of transition services that emphasized the career choices of students with disabilities and the types of transition services as defined by the IDEA of 1997 (i.e., instruction, community experiences, development of employment and other postsecondary living objectives, and functional vocational education) needed to support those choices. This transition model was designed to develop transition services around pathways that were “most typically available to youth in schools today” (p. 200). Identifying four career pathways that should be available to students with disabilities, Greene posited that students could follow pathways that were: (a) fully integrated college preparatory, (b) full or semi-integrated community college preparatory, (c) semi-integrated employment and independent living preparatory, and (d) semi-integrated supported living and supported employment preparatory.

These conceptual models of transition have yet to be researched, and the purpose of this study was to examine how well these models corresponded to actual transition practices occurring in schools in Ohio. For this study, 741 exiting students were interviewed to determine postsecondary goals and transition services received. A descriptive typology was statistically derived in order to determine patterns in the exit data for comparison to Siegel’s (1998) and Greene’s (2003) transition models. Specifically, the research questions that guided this study were:

1. What were the transition pathways of students with disabilities who were exiting special education?
2. How did career pathways and service patterns of students in this sample correspond to the transition services models described by Greene and Siegel?

Method

Participants

The sample was 741 students randomly selected from the population of Ohio special education students who were graduating in the Year 2004 from the local education agencies (LEAs) in five of sixteen Special Education Regional Resource Center (SERRC) regions in Ohio. In each SERRC region, LEAs were recruited to represent a cross-section of urban, suburban, and rural areas. Urban school settings accounted for 31% of the sample, suburban 52%, and rural 17%. High schools accounted for 76% of the surveys, joint vocational schools (or career and technical centers) for 19%, and other schools (e.g., separate schools for students with severe/profound disabilities, the School for the Blind, the School for the Deaf, etc.) for 5%. The average free school lunch rate for districts that participated was 23.5% compared to 20.0% for students in Ohio schools in general (Ohio Department of Education Similar Districts Raw Data, 2004).

Within each participating LEA, exiting students were randomly selected. Table 1 shows how the exiting students with disabilities in this sample compared to the population of students with disabilities exiting Ohio in the Year 2000 according to the Twenty-Fourth Annual Report to Congress (U.S. Department of
Education, 2002). The sample generally matched the profile of students who had exited in the Year 2000 with minor overrepresentation of minorities and some underrepresentation of students with multiple disabilities.

**Procedure**

Students with disabilities were surveyed in the spring of their final year in school. Surveys were conducted by the students’ special education teachers in person, generally as part of the students’ exit IEP. In most cases, students provided all of the information on their own, but for approximately 6% this information was provided by parents or significant others. Prior to the interview, teachers conducted a record review to obtain information about student disability designations and the secondary education programs in which they were involved. Teachers were trained in two half-day sessions on how to administer the surveys and code student responses. Teachers were allowed to paraphrase questions to make them more understandable to the students as needed.

**Instrument**

The survey used in this study consisted of two parts—a student record review and a student/family interview. The survey used in this study was derived from a follow-up survey developed by Ohio’s systems change project for transition (Baer et al., 2003), and from follow-up surveys developed for the National Longitudinal Study for Transition (Wagner & Blackorby, 1996). The survey’s face validity was tested over four years at ten LEAs (Baer et al.). During piloting, the teachers administering the surveys evaluated the survey process and each question in the survey for clarity, content, and reliability. Survey questions were dis-

### TABLE 1

**Comparison of Participants in Study to Students Graduating with Diplomas**

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Study Sample</th>
<th>Ohio Exiters 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>n(741)</td>
<td>N (9,709)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>432</td>
<td>*</td>
</tr>
<tr>
<td>Female</td>
<td>307</td>
<td>*</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>592</td>
<td>8,257</td>
</tr>
<tr>
<td>African-American</td>
<td>101</td>
<td>1,283</td>
</tr>
<tr>
<td>Other Ethnic</td>
<td>37</td>
<td>169</td>
</tr>
<tr>
<td><strong>Primary Disability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning disabilities</td>
<td>416</td>
<td>5,351</td>
</tr>
<tr>
<td>Mental Retardation</td>
<td>179</td>
<td>2,605</td>
</tr>
<tr>
<td>Other Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired</td>
<td>42</td>
<td>476</td>
</tr>
<tr>
<td>Emotional Disability</td>
<td>28</td>
<td>481</td>
</tr>
<tr>
<td>Hearing Impairments</td>
<td>15</td>
<td>112</td>
</tr>
<tr>
<td>Multiple Disabilities</td>
<td>11</td>
<td>362</td>
</tr>
<tr>
<td>Visual Impairment</td>
<td>9</td>
<td>58</td>
</tr>
<tr>
<td>Autism</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Orthopedic Impairment</td>
<td>5</td>
<td>116</td>
</tr>
<tr>
<td>Traumatic Brain Injury</td>
<td>5</td>
<td>53</td>
</tr>
<tr>
<td>Speech and Language</td>
<td>3</td>
<td>79</td>
</tr>
<tr>
<td>Deaf-Blindness</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

* These data were not available from the 24th Annual Report to Congress
carded or revised if the surveyors found they were hard for students to understand, lacked consistent interpretation, or elicited unreliable information based on what the surveyors knew about their students. Additionally, some interview questions were cross-checked with student records to identify whether student responses were congruent with information known about the student. Items with less than 95% agreement were discarded. After refining and editing the survey questions, the questionnaire was formatted in a bubble format for easier coding.

Analysis

Cluster analysis was chosen to address the first question of this study: What were the transition pathways of students with disabilities who were exiting special education? Results from this analysis were also a way of developing descriptive typologies and classification for comparison with the Siegel (1998) and Greene (2003) models (the second question). For this set of data, the authors chose the SPSS two-step cluster analysis because it works well with both continuous and categorical data (Al-denderfer & Blashfield, 1984; SPSS, 2003). Because there was overlap in two of the groups identified by Greene and Siegel, seven clusters were generated to provide sufficient detail for comparison with the five transition intensity levels of Siegel and the four career paths of Greene. Survey questions that were used in developing the cluster analysis were selected according to whether the same variables were discussed in the Greene and Siegel models. Table 2 provides a list of the survey questions that were used in the development of this cluster analysis. Generally, items were chosen to develop a picture of student postschool goals, career pathways, and types and intensity of transition services. The clustering technique used to group these variables was the log-likelihood criterion where the distance between two clusters depended on the decrease in log-likelihood when they were combined in a single cluster (Norusis, 2003).

After clustering, an analysis of variance (ANOVA) and a Tamhane’s T2 post hoc analysis were used to identify variables in each cluster that were significantly different from the other clusters. The Tamhane’s T2 conducts conservative pair wise comparisons based on a t test and is appropriate when the variances are unequal (SPSS, 2003). While analysis of variance should not be used to validate clusters (since the process itself is designed to yield non-overlapping variables), post hoc tests can be useful in identifying variables that were unique to each cluster (Al-denderfer & Blashfield, 1984).

Results

Cluster Analysis

Table 3 shows how participants in each cluster responded to the defining items. The clusters ranged in size from 68 to 135 graduating students. Fifteen students did not fit into any cluster and were classified as “outliers.”

Many of the defining variables were shared among the clusters, while the variables that made clusters unique generally fell into one of three categories: (a) postschool goals/career pathways, (b) disability, and (c) the academic proficiencies of students.

In regard to the first question, “What were the transition pathways of students with disabilities who were exiting special education?” Cluster 1 had a few students (7.1%) with postsecondary education goals but mainly focused on students planning to enter employment after graduation. It had a high number of students with cognitive disabilities and very low numbers of students passing their ninth grade proficiency tests. This cluster was also distinguished by a high rate of participation in work study and supported employment programs, many students planning to use SSI disability benefits as a source of income, a high level of alternate assessment, and a low rate of participation in regular academics.

Cluster 2 had a higher proportion of students planning to enter two-year colleges with the remainder planning to enter four-year colleges. It was among the three clusters that had a significantly lower rate of students passing their proficiency tests, and it also was among two clusters that had a high number of students with cognitive disabilities. Services included semi-integrated academics and some work study. More IEP focus was on residential goals. This cluster also had a significantly lower proportion of male and white students.
and a relatively high number of urban students.

Cluster 3 had a high proportion of high academic achieving male students generally planning to enter employment after graduation. Services included high levels of fully in-

TABLE 2

Survey variables used in the cluster analysis

1. Did the student plan on any postsecondary education? This variable was selected to identify students in Siegel (1998) and Greene’s (2003) postsecondary education career paths.
2. Did the student plan on four-year college as an outcome? This variable was selected to separate students for whom regular and advanced academics would be critical as per Siegel’s level 1 transition intensity and Greene’s first career path.
3. Did the student plan on two-year college as a postschool outcome? This variable was selected to separate students who may need a combination of academics and career/technical classes per Siegel’s level 2 and Greene’s second career path.
4. Did the student plan on a technical school as a postschool outcome? This variable was selected to separate students who would generally need high levels of technical training and proficiency.
5. Did the student plan to work full-time after graduation? This variable was used to separate students who would typically benefit from work study, supported employment, and career/technical education.
6. Was the student from an urban setting? This variable was used because urban schools typically have high poverty levels and unique student concerns.
7. Was the student white? This variable was used to separate students who were from majority or minority cultures.
8. What gender was the student? This variable was designed to identify gender issues?
9. Was the student categorized as having a learning disability? This variable was used to separate students from the predominate disability group from other students in this study?
10. Did the student attend regular academic classes? This variable was designed to separate students who did or did not participate or have access to inclusive academic classes.
11. Did the student attend regular career/technical classes? This variable was designed to separate students who did or did not have access to inclusive career/technical education.
12. How many semesters did the student take career/technical education? This variable was used to separate out students who were career/technical concentrators.
13. Did the student participate in work study? This variable was used to separate out students who received school-supervised work experiences.
14. Did the student participate in supported employment (Option 4 in Ohio)? This variable was used to separate out students who needed intensive supports to work.
15. Did the student plan to have a driver’s license? This variable was used to separate out students who would need or not need alternative forms of transportation.
16. Did the student’s transition plan (ITP) also address residential needs? This variable was used to separate out students who had residential needs.
17. Did the student’s transition plan (ITP) also address community and social needs? This variable was used to separate out students who had community and social/interpersonal needs.
18. Did the student plan to apply for disability benefits such as SSI? This variable was used to separate out students who were eligible and in need of financial supports.
19. Did the student report passing mathematics proficiency tests? This variable was used to separate out students who had good mathematics proficiency.
20. Did the student report passing reading proficiency tests? This variable was used to separate out students who had good reading proficiency.
21. Did the student report passing writing proficiency tests? This variable was used to separate out students who had good writing proficiency.
22. Did the student report passing science proficiency tests? This variable was used to separate out students who had good science proficiency.
23. Did the student report passing citizenship proficiency tests? This variable was used to separate out students who had good social studies proficiency.
24. Did the student report taking an alternate assessment? This variable was used to separate out students who had difficulty taking state proficiency tests.
### TABLE 3

Percent of Survey Items Defining Clusters*

<table>
<thead>
<tr>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>Cluster 4</th>
<th>Cluster 5</th>
<th>Cluster 6</th>
<th>Cluster 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 127)</td>
<td>(n = 68)</td>
<td>(n = 93)</td>
<td>(n = 128)</td>
<td>(n = 104)</td>
<td>(n = 135)</td>
<td>(n = 71)</td>
</tr>
<tr>
<td>Full-time work goal (63%)</td>
<td>Four-year college goal (24%)</td>
<td>Full-time work goal (82%)</td>
<td>Urban student (45%)</td>
<td>Two-year college goal (100%)</td>
<td>Four-year college goal (99%)</td>
<td>Technical school goal (100%)</td>
</tr>
<tr>
<td>Cognitive disabilities (76%)</td>
<td>Two-year college goal (72%)</td>
<td>Urban student (15%)</td>
<td>Learning disabilities (89%)</td>
<td>Urban student (15%)</td>
<td>Full-time work goal (18%)</td>
<td>Male student (83%)</td>
</tr>
<tr>
<td>Work study program (72%)</td>
<td>Cognitive disabilities (81%)</td>
<td>Male student (73%)</td>
<td>Regular academics (84%)</td>
<td>Regular academics (93%)</td>
<td>Regular academics (98%)</td>
<td>Regular academics (92%)</td>
</tr>
<tr>
<td>Supported work (23%)</td>
<td>Regular academics (57%)</td>
<td>Learning disabilities (83%)</td>
<td>Regular career/tech (66%)</td>
<td>Regular career/tech (49%)</td>
<td>Regular career/tech (32%)</td>
<td>Regular career/tech (76%)</td>
</tr>
<tr>
<td>ITP community goals (80%)</td>
<td>Work study program (46%)</td>
<td>Regular academics (93%)</td>
<td>Mean Proficiency (18%)</td>
<td>Work study program (40%)</td>
<td>Work study program (22%)</td>
<td></td>
</tr>
<tr>
<td>Plan to use SSI etc. (40%)</td>
<td>ITP residential goals (81%)</td>
<td>Regular career/tech (67%)</td>
<td>Mean Proficiency (93%)</td>
<td>Mean Proficiency (97%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Proficiency (8%)</td>
<td>Mean Proficiency (9%)</td>
<td>Mean Proficiency (92%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternate Assessment (31%)</td>
<td>Male Student (37%)</td>
<td>Urban Student (41%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Items listed under a cluster differed significantly from at least one other cluster.
tegrated academic classes, and higher levels of career/technical education. This cluster had fewer urban students.

Cluster 4 did not distinguish itself from all the other clusters on any given variable. It appeared to be the product of two variables—learning disabilities and low rates of passage of the ninth grade proficiency exams. Services generally included semi to fully-integrated coursework and higher levels of career/technical education. This cluster had a higher proportion of urban students.

“Two-year college goal” clearly defined cluster 5 with all students in this cluster indicating this postschool goal. This cluster was also among the four clusters whose students generally passed their ninth grade proficiency tests. Services generally included regular academics, some career and technical education, and often work study. On a descriptive level, this cluster was also distinguished by a relatively low number of urban students.

“Four-year college goal” clearly defined cluster 6 which had significantly higher numbers of students listing this goal than all of the other clusters. This cluster was also among the four clusters whose students generally passed their ninth grade proficiency tests and had the highest passing rate. On a descriptive level, this cluster was also characterized by few students who planned to work full-time after leaving high school, a high participation in regular academics, and low rate of participation in work study programs and in career/technical education.

“Technical school goal,” was significantly higher for cluster 7. This cluster was also among the four clusters that scored well on the ninth grade proficiency test. On a descriptive level, this cluster was also characterized by a high level of participation in career/technical education and a high proportion of male students.

The second research question was “How did career pathways and service patterns of students in this sample correspond to the transition services models described by Greene (2003) and Siegel (1998)?” Table 4 shows how the clusters compared with their most similar counterparts in the Siegel and Greene models. Each cluster is labeled with the characteristics that best describe the unique features of students in each group. Cluster 1 included low academic achieving students planning to enter work and likely to use SSI. This cluster showed much similarity to Siegel’s level 5 (most intense) transition intensity and Greene’s career pathway 4 which included a semi-integrated instructional program focused on daily living skills, community instruction, career exploration, and paid work experiences.

Cluster 2 included low academic achieving students primarily with cognitive disabilities planning to enter 2 and 4-year colleges and showed marginal similarity to Siegel’s (1998) level 5 transition intensity in that these students probably had career paths with lower likelihood of success due to lack of academic proficiency. Cluster 2 did not appear to match Greene’s (2003) pathway 2 that focused on community colleges and professional school outcomes because of their failure to achieve academic proficiency. Additionally, many of these students planned to use SSI benefits after graduation.

Cluster 3 students consisted of high academic achieving students generally planning to enter employment after graduation and showed some similarity to Siegel’s (1998) level 2 transition intensity in that they were generally high academic achievers and had higher levels of career and technical education. Cluster 3 was not paired with Greene’s (2003) career pathway 3 because these students appeared to have a high likelihood of independent rather than semi-independent living outcomes after graduation.

Cluster 4 students consisted of low achieving students mainly with learning disabilities planning to enter college and/or employment, and these students showed similarity to Siegel’s (1998) level 3 transition intensity grouping in that they were low to average academic achievers, some of whom were college bound. Many of these students had community participation goals in their IEP suggesting fewer community resources. These students showed a great deal of similarity to Greene’s (2003) career pathway 3 that focused on students in semi-integrated curriculum who would need additional supports to live independently.

Cluster 5 students consisted of fairly high achieving students planning to enter 2-year colleges. These students fit well with Siegel’s (1998) level 2 transition intensity in that they had community college goals and some career and technical education. Cluster 5 students also
<table>
<thead>
<tr>
<th>Cluster and Features</th>
<th>Siegel 5 Level Model</th>
<th>Greene 4 Pathways Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1 - low academic achieving students planning to enter work and likely to use SSI. Services included semi-integrated academics more work study and supported employment. More IEP focus on residential and community goals.</td>
<td>Level 5 - Low achieving or youth with significant disabilities at high risk of unemployment and marginalization. Often have illegitimate career paths. Services include model community programs, immersion programs, and intensive follow-along services.</td>
<td>Pathway 4 - semi-integrated instructional program focused on daily living skills, community-based instruction, career exploration, and paid work experiences. Need daily living skills for independent residential and community living.</td>
</tr>
<tr>
<td>Cluster 2 - low academic achieving students primarily with cognitive disabilities planning to enter 2 and 4-year colleges and somewhat more likely to use SSI. Services included semi-integrated academics and some work study. More IEP focus on community goals.</td>
<td>No equivalent transition intensity level</td>
<td>No equivalent career path</td>
</tr>
<tr>
<td>Cluster 3 - high academic achieving students generally planning to enter employment after graduation. Services included high levels of fully integrated academic classes, higher levels of career/technical education.</td>
<td>Level 2 - Average to high achievers, some college-bound. Services include tech-prep, job and job training activities, unsupervised work experience and targeted college scholarships and options.</td>
<td>No equivalent career path</td>
</tr>
<tr>
<td>Cluster 4 - low achieving students mainly with learning disabilities planning to enter college and/or employment. Services generally included semi to fully-integrated coursework and higher levels of career/technical education.</td>
<td>Level 3 - Low to average achievers; some college bound, more from a low economic status. Services include vocational/special education, cooperatives, work experience, help with college education.</td>
<td>Pathway 3 - Semi-integrated high school curriculum leading to passage with differential standards, if necessary, of district proficiency exams and graduation. Services include career exploration, paid work experiences, and vocational evaluation.</td>
</tr>
<tr>
<td>Cluster 5 - fairly high achieving students planning to enter 2-year colleges. Services generally included regular academics, some career and technical education, and often work study.</td>
<td>Level 2 - Average to high achievers, some college-bound. Services include tech-prep, job and job training activities, unsupervised work experience and targeted college scholarships and options.</td>
<td>Pathway 2 - Semi-integrated high school curriculum, completion of graduation requirements for entrance into a community college or professional school. Services include paid work experiences.</td>
</tr>
</tbody>
</table>
showed a good fit with Greene’s (2003) career pathway 2 which included semi-integrated high school curriculum and completion of high school requirements for entrance into a community college.

Cluster 6 students consisted of very high achieving students who generally plan to enter 4-year colleges. Services included regular academics. Less likely to be in work study or career/technical education.

Cluster 7 - High achieving students who plan to enter technical school. Services include very high levels of career-technical education.

Discussion

The primary variables that predicted student career pathways and the intensity of transition services centered around three general types of variables tapped by the survey used in this study. Students’ academic proficiency and postsecondary education goals were the primary differentiating variables for three of the clusters—proficient students planning to enter four year colleges (cluster 6), proficient students planning to enter two year colleges (cluster 5), and proficient students planning to enter technical schools (cluster 7). Students in these three clusters generally showed a good alignment between secondary education and postsecondary goals and as a group represented 42% of the sample. These students appeared to have benefited from standards-based reforms and a transition focus of academic and functional achievement. They achieved academic proficiency and were able to participate in career and technical education as needed.

The discrepancy between postschool goals and academic proficiency defined two clusters—proficient students planning to enter employment (cluster 3) and non-proficient students planning to enter college (cluster 2). Proficient students planning to enter employment represented a fairly high number of career and technical education concentrators and a high proportion of this cluster was male students. Non-proficient students planning to enter college had a low proportion of male students and a high proportion of minority students. Cluster 3 students showed a better match between their secondary education and
postschool goals because they had a higher level of career and technical education which could lead to employment after graduation. Cluster 2 students showed a poor match between their postschool goals and secondary program. These students were not enrolled in programs that were likely to lead to college with many participating in non-integrated academics and focusing on work study. When cluster 2 was discussed with the teachers who conducted the surveys, they suggested that many of these students were young women planning to have children and work part-time after graduation.

One cluster was defined by the discrepancy between the disability and academic proficiency—non-proficient students with learning disabilities (cluster 4). The secondary program for this cluster included fairly high average levels of career and technical education. When this cluster was discussed with the teachers who conducted the surveys, they suggested that many of these students had behavioral issues that interfered with their learning.

One cluster (cluster 1) was defined by the disability (cognitive) and by high levels of school and postschool support needs. This cluster had significantly higher averages of students participating in alternate assessment, supported work in high school, work study, community goals as part of their IEP, and planning to use SSI after graduation. These students also had lower than average numbers of students participating in any regular academics.

The second research question asked, “How did the intensity of transition services and career paths of students in this sample correspond to the transition services models described by Greene (2003) and Siegel (1998)?” To some degree, this analysis tried to answer the question of whether school transition systems were operating in an exemplary fashion.

For low academic achieving students planning to enter employment (cluster 3) showed a fairly high level of agreement with Siegel’s (1998) transition intensity level 2 model. Students in this cluster generally took more career and technical education and, therefore, had a reasonable chance of success under the Siegel model. None of the career pathways described by Greene (2003) matched this cluster very well. Under Greene’s model, these students would generally be encouraged to consider postsecondary education through college visits, functional vocational evaluation, and self-determination training.

Low achieving students with learning disabilities (cluster 4) generally fell in line with Siegel’s (1998) transition intensity 3 and Greene’s (2003) career pathway 3. Siegel suggested that these students needed vocational special education, which in light of the low proficiency levels of these students was probably provided in their career and technical education settings. Greene would emphasize career exploration, paid work experiences, and vocational evaluation to help these students find settings where their lack of academic proficiency would be less critical.
High achieving students planning to enter two year colleges (cluster 5) showed many similarities to Siegel’s (1998) transition level 2 and Greene’s (2003) pathway 3. Siegel’s model emphasized the need for career and technical education for these students, while the Greene model focused more on progress in the general curriculum. Both emphasized the need for transition supports related to finding appropriate colleges and financial support.

High achieving students planning to enter four year colleges (cluster 6) showed a high level of agreement with Siegel’s (1998) transition intensity level 1 and with Greene’s (2003) career pathway 1. Both models agreed that these students should be highly focused on progress in the general academic curriculum. Greene’s model had greater emphasis on career exploration and work experiences than was evident for this cluster. Many of the teachers conducting the surveys suggested that these students needed more self-determination training to request the needed accommodations while in college, since they noted that special education had only very limited contact with these students.

High achieving students planning to enter technical school after graduation (cluster 7) were lumped into Siegel’s (1998) transition level 2 and Greene’s (2003) career pathway 2. Participants in this sample appeared to be higher functioning academically than suggested in the Greene model, and most participated in regular academic classes. The high level of proficiency among these students suggested that tech-prep and programs leading to professional schools may be as demanding academically as the regular college preparatory tracks.

Limitations

It should be emphasized that cluster analysis is heavily influenced by its interpretation. Aldenderfer and Blashfield (1984) have presented three general precautions that must be considered in interpreting cluster analyses:

1. Cluster analyses are inevitably biased by the questions being asked of the data.
2. Different clustering methods can generate different solutions to the same data set.
3. The strategy of cluster analysis is structure seeking and will always place objects into groups.

In regard to the first limitation of cluster analysis, the Siegel (1998) and Greene (2003) models were used to reduce the bias in questions being asked of the data. Additionally, the results and conclusions of this study were discussed extensively with teachers conducting the surveys through two follow-up meetings and their interpretations were used to triangulate the conclusions drawn by the researchers. The choice of seven clusters undoubtedly affected the interpretation of the data. More clusters would have generated more alternative structures and would have probably provided less congruence with the five and four group models of Greene and Siegel.

Care should also be taken in generalizing these findings to sub-groups, especially students with severe disabilities. Most of the students in this study had learning disabilities and coupled with students with other health impairments (such as attention deficit-disorder), students with mild disabilities were a large majority of the sample. Students with more severe disabilities tended to be clustered with students with cognitive disabilities, so conclusions about sub-groups (such as multiple disabilities, autism) were not possible with this form of analysis. Also, it should be noted that this sample only included students with disabilities who aged out or graduated from secondary education. Consequently, these findings can not be generalized to students who dropped out.

Future Research

Additional research will be required to determine how students in each of the career pathways and transition intensity levels fared after graduation. Also, additional research is needed to track how decisions about career paths and the intensity of transition services were made. As Greene (2003) emphasized in his discussion, career paths can easily become career tracks if choices are not based on the decisions of students and family who are self-determined and empowered.

Additional research is also needed on the relationship between the intensity of transition services and the career paths of students.
with disabilities. Should the primary point of intervention be to ensure students choose career paths that have a high probability of success, or should secondary educators enhance the intensity of transition services for students who choose unconventional career paths?

Conclusion and Recommendations

1. The concept of transition will need to develop a new vision to rapidly adapt to the skyrocketing postsecondary education goals of students with disabilities.

The skyrocketing expectation for postsecondary education identified in this study raised a number of issues. First, transition coordinators will need to broaden their focus and develop expertise in helping students with disabilities transition to college. Teachers who conducted the surveys reported that they were surprised by the numbers of students in postsecondary paths. They noted that many of these students were not receiving transition services through special education and/or that special educators were not aware of the postsecondary education goals of their students. A related question was whether postsecondary educational systems will be able to accommodate these students. Currently, national data suggests that only about half of students with disabilities anticipating postsecondary education ever enroll, and even fewer completed postsecondary education (Cameto, 2003). It is essential that transition supports be infused into both the secondary and postsecondary environments in order to support these students, including continued commitment to support access to standards-based education and appropriate academics in secondary school.

2. New models of transition focused on academic and functional achievement will require greater involvement of regular and career/technical educators, school guidance counselors, and other school and adult services personnel.

The number of students with disabilities planning to enter postsecondary education suggested there is a continuing need to build capacity within the general curriculum by raising the expectations for students with disabilities and by developing a shared responsibility throughout the educational system for improving results for all learners. These new opportunities to collaborate will enhance the transition planning process, providing applied learning experiences outside the classroom and integrating work experiences into the students’ educational experiences. Continued expansion of this collaboration will be required to ensure that students are provided the breadth of experiences that lead to positive post school outcomes for students.

3. This vision will require continued professional development for the individuals coordinating transition services for students with disabilities along with other educators and agency personnel that support the student’s transition plan.

To promote collaboration in providing transition services in the general curriculum, it will be necessary to train regular educators, guidance counselors, and other ancillary staff regarding the transition needs of students with disabilities. Guidance counselors will need to become more familiar with the major adult services and disabilities supports available in employment and postsecondary settings for students with disabilities. There is also a critical need to develop assessment, curriculum, and instructional strategies that are relevant for all students. This will require training to promote high expectations for students with disabilities, systemic use of instructional accommodation and strategies, and assuring that students with disabilities have access to the full range of secondary education curriculum to reduce the gaps between students with disabilities and their non-disabled peers. This move toward shared responsibility will require a focus on outcomes and the continued development of data collection that will allow state, regional, and local educational agencies to promote policies, procedures, and practices associated with improved postsecondary outcomes for all students.

References

(NLTS2): Collecting and utilizing postschool outcome data to improve transition programs and services at the national, state, and local levels. Capacity Building Institute, Division of Career Development and Transition, Council for Exceptional Children, Roanoke, Virginia.

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