

Mentoring Individuals with Disabilities in Postsecondary Education: A Review of the Literature

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Abstract

The purpose of this literature review was to locate, describe, and analyze empirical data on mentoring individuals with disabilities in postsecondary (or higher) education. The fundamental question posed was: Is there evidence to support effective mentoring practices for students with disabilities in postsecondary (or higher) education? This paper begins with a brief description of several types of mentoring models to establish context, followed by a presentation of the parameters of the literature search. Findings demonstrate that evidence-based research about mentorship for students with disabilities in postsecondary education is minimal. Only 10 articles fit the search criteria. These articles are categorized into three areas: a) transition to higher education, b) success in higher education, and c) work and higher education. A discussion of themes in the articles reviewed is followed by suggestions for future research.

A 2005 report by the National Council on Disability (NCD) on the status of disability in the United States fifteen years after the passage of the Americans with Disabilities Act (ADA) described the importance of a college education for individuals with disabilities. The NCD stated, "Out of people ages 25-64, 43.1 percent of those without a disability graduated from college, compared with 32.5 percent of individuals with a non-severe disability and just 21.9 percent of those with a severe disability."

Might mentoring improve those statistics? At least two authors (Burgstahler & Crawford, 2007) believe so, contending:

Mentoring relationships can occur naturally, but students with disabilities rarely have opportunities to meet adults with disabilities with the potential to be significant positive influences in their lives. Implementing an intentional mentoring program for students with disabilities can help ensure that these students are not left behind their peers in academic and career achievement (pp. 99-100).

In support of this perspective we conducted a literature review on mentoring in postsecondary (or, interchangeably in this article, higher) education asking the question: Is there evidence to support effective

mentoring practices for students with disabilities in postsecondary education?

Prior to conducting this literature review, the authors hypothesized that there would be evidence indicating that mentoring has a positive impact on students with disabilities in postsecondary education. We discovered, however, a general lack of evidence to support this hypothesis. Only 10 articles met the established criteria. We categorized these articles into: a) transition to higher education, b) success in higher education, and c) work and higher education.

The remainder of this article is organized by a) a general description of types of mentoring, b) an in-depth exploration of the methodology, c) an analysis of each article, d) discussion, and e) suggestions for future directions.

Types of Mentoring

Mentoring, both conceptually and in practice, is ancient, existing at least since the time of Homer. The Greek author described Odysseus leaving for battle and requesting his friend Mentor to guide and protect his son in his absence (National Center on Secondary Education and Transition [NCSET], 2003). Over the

centuries, and especially since the twentieth century when organizations such as Big Brothers/Big Sisters and twelve step programs became popular, mentoring models have proliferated. Understanding mentoring in contexts other than that of disability assisted the authors in understanding how, or if, mentoring worked in a higher education setting. Therefore, different types of mentoring are described in this section as a prelude to discussions of the specific articles included in the literature review.

There are many overlapping categories of mentoring and mentoring environments. Mentoring roles include

career sponsors, peer counselors or peer supporters, coaches, and mentors (Bierema & Merriam, 2002). Types of mentoring include one-on-one, group, community-based, electronic, peer, faith-based, and senior citizens (Timmons, Mack, Sims, Hare, & Wills, 2006; Axelrod, Campbell, & Holt, 2005). In a postsecondary setting, faculty may be both mentor and mentee, depending on areas of expertise (Anderson, 2000).

Each mentoring example may be found in many settings, such as employment, educational, home, or community. Table 1 provides brief descriptions of several forms of mentoring relevant to postsecondary education.

Table 1

Sample Types of Mentoring

One-on-One	Group	Community-based	Electronic	Peer
Face-to-face meetings, telephone conversations, letters, email, chat rooms, social networking, text messaging, or other activity providing direct contact.	A Mentor works with more than one mentee at the same time.	Located in a community-based situation, such as a volunteer setting like a Senior Citizen's Recreational Center.	Bulletin boards, listservs, discussion groups.	Two people of equal status, and similar situations, who share many common characteristics and experiences, for example, individuals with disabilities in a work or educational setting.

Foster Heckman, Brown, and Roberts (2007) defined mentoring as a:

dynamic, reciprocal, long-term formal, or informal, relationship that focuses on personal and/or professional development. A mentor is a sounding board and guide. Mentors provide perspective, resources, and ask thought-provoking questions. In the ideal mentoring relationship, mentors and mentees, or protégés, learn from and teach each other. (p. 2)

A graphic representation of this mentoring definition is shown in Figure 1.

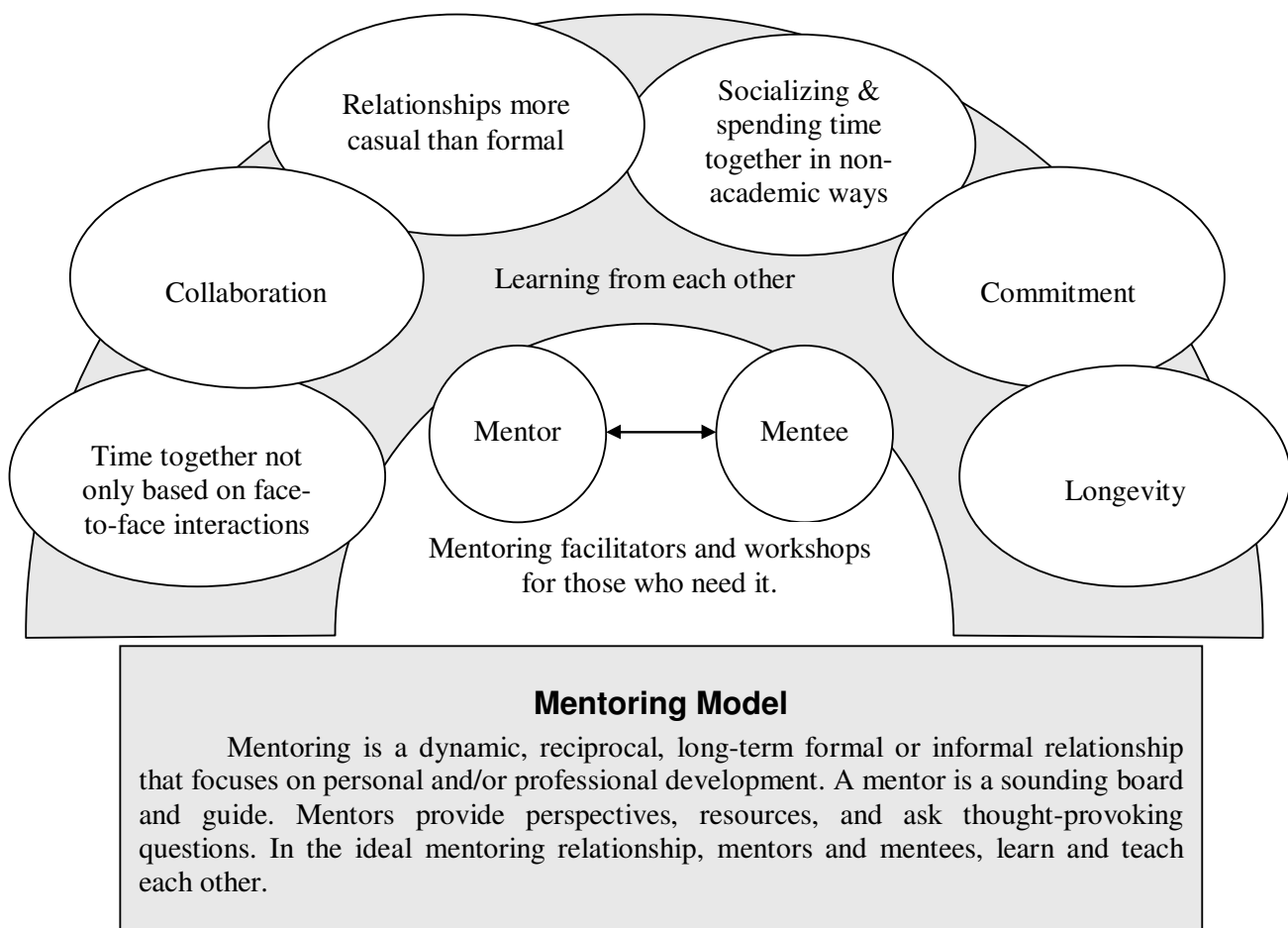
Another component to consider in today's multicultural postsecondary education is cultural brokering or the importance of understanding cultural differences. Cultural backgrounds impact the ways individuals and

their families may view disability and disability support services. Cultural brokering aims to bridge the divide between culture and support services. It is helpful for mentors to know about a protégé's culture and understand how cultural differences may impact the relationship between mentor and protégé. For example, some men may find it culturally awkward to be mentored by a woman, potentially causing a strain on the mentor-protégé relationship and making it less effective than it might be otherwise.

Method

This section includes a detailed description of the search methodology. In reviewing each of these articles,

Figure 1. Mentoring Model



the authors sought to answer the research question, is there evidence to support effective mentoring practices for students with disabilities in postsecondary education? Three criteria were established to guide our literature search. Articles had to: a) be published in peer-reviewed journals; b) describe evidence-based research about mentoring programs focused on transition to, retention in, or matriculating from, postsecondary education; and c) be published after 1990, the year the ADA became law.

To validate the utility of mentoring in postsecondary education the authors included only evidence-based articles discussing mentoring in higher education, thereby excluding thousands of articles about mentoring in general, many of which promoted the efficacy of mentoring without demonstrating proof. The authors searched for articles published since 1990 because of the potential impact on higher education following passage of the ADA. Our literature search was inclusive of 1990 to 2007 and included one-half of 2008, when the article was submitted for publication.

We considered articles to be relevant when they a) included evidence-based literature on mentoring and disabilities, b) the main subjects of the study were students with disabilities, and c) the first two also aligned with the established research criteria. Because the majority of articles did not specifically concentrate on mentoring and postsecondary education, we then looked for data describing success in a) transitioning to, b) remaining in, c) graduating from, or d) finding a job after postsecondary education. If any article included a degree of success related to one of these four criteria, it is included in this literature review. A description of how each article addressed these topics is discussed in the three summary sections that immediately follow this section.

The authors conducted primary searches using the following electronic databases: Academic Search Premier, Psychology and Behavioral Sciences Collection, Professional Development Collection, Educational Resource Information Center (ERIC), Teacher Reference Center, Springer Link, and EJS-E-Journals. The initial search used keyword combinations referencing postsecondary education (“postsecondary,” “college,” “university,” and “higher education”) with “disabilities” and “mentor” or “mentoring.” Additional keyword searches were also conducted using terms for postsecondary education in combination with “disability awareness” as well as a combination of terms for “postsecondary education,” “disabilities,” and either “peer support,”

or “natural supports.” In total, 20 possible keyword combinations were used to search seven different electronic databases as shown in Table 2, listing database search terms.

Results from the electronic literature search are presented in Table 3, illustrating the total number of articles generated using 20 possible combinations of key terms and the number of “relevant” articles that met the three criteria from each database search. Since the articles generated are not exclusive to particular databases, many searches resulted in multiple returns of the same articles, leading to a seemingly large number of “relevant” articles. Furthermore, many articles included a sentence about students with disabilities and mentoring in a postsecondary education setting, but did not contain enough substance to be included in the final review.

In addition to the online keywords database search, two authors conducted manual hand-searches through a total of 38 peer-reviewed journals. The journals were selected based on relevant hits from the database search. The hand-search involved going through every abstract of all articles of each volume for the years specified. Thirty-eight hand-searched journals led to 25 pertinent hits. Detailed lists of journals and the number of corresponding pertinent hits are listed in Table 4, showing a detailed summary of the manual searches.

Because of the minimal number of articles fitting the criteria, two additional actions were taken. First, articles in English describing mentoring outside the United States were included if they matched the criteria. This increased the reviewed articles from eight to ten. Second, the lead author sent e-mails to disability and higher education listservs to request references to relevant articles. The e-mail described the research, its parameters, and the authors’ difficulty in locating articles meeting the criteria, concluding with a request for appropriate referrals. E-mails were posted on the following three listservs:

1. Society for Disability Studies;
2. Disability Research Discussion List (United Kingdom); and
3. Disability Student Services in Higher Education

Eight responses resulted from these emails. The majority asked to share what we discovered. Three respondents suggested over 50 articles, all but two of which had already been uncovered in the authors’ searches. Based on this feedback, one article was added to the review.

Table 2

Database Search Terms

Combinations of database search terms

1. Mentoring + Disabilities + Higher Education
Mentoring + Disabilities + Postsecondary Education
Mentoring + Disabilities + University
Mentoring + Disabilities + College
 2. Mentors + Disabilities + Higher Education
Mentors + Disabilities + Postsecondary Education
Mentors + Disabilities + University
Mentors + Disabilities + College
 3. Natural Supports + Disabilities + Higher Education
Natural Supports + Disabilities + Postsecondary Education
Natural Supports + Disabilities + University
Natural Supports + Disabilities + College
 4. Peer Support + Disabilities + Higher Education
Peer Support + Disabilities + Postsecondary Education
Peer Support + Disabilities + University
Peer Support + Disabilities + College
 5. Disability Awareness + Higher Education
Disability Awareness + Postsecondary Education
Disability Awareness + University
Disability Awareness + College
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Note. Limiters set for the database search: 1. Between 1990-2008; 2. peer reviewed; and, 3. scholarly/journal article.

Table 3

Results of Database Search

Databases	Number of Hits	Number of Pertinent Hits
Academic Search Premier	180	33
ERIC	621	104
Psychology and Behavioral Science Collection	103	18
Professional Development Collection	125	20
EJS-E-Journals	16	5
Teacher Reference Center	78	14
Disability and Society	8	0
Springer Link	220	5
Total	1,351	199

Note. The number of hits includes duplication of articles.

Table 4

Detailed Summary of Manual Search

Journals	Number of Pertinent Hits
JN Disability & Rehabilitation	0
JN Disability & Society	0
JN Disability, Culture & Education	0
Int'l JN of Disability, Development & Education	0
JN of Disability & Policy Studies	0
JN of Intellectual & Developmental Disability	0
JN of Intellectual Disability Research	0
JN of Learning Disability Practice	0
JN Learning Disability Quarterly	0
JN Technology and Disability	0
JN of Mentoring & Tutoring Partnership in Learning	0
College Student Journal in Professional Development	0
JN of Behavioral Sciences & the Law	0
Communication and Education	2
JN of Community Psychology	0
JN of Exceptional Children	1
JN of Exceptionality	0
JN of Postsecondary Education & Disability	1
JN of Vocational Rehabilitation	6
American Rehabilitation Journal	2
Preventing School Failure	4
Psychiatric Rehabilitation Journal	4
JN of Primary Prevention	1
JN of Career Development	1
Annals of Dyslexia	0
The School Counselor	0
American Journal of Community Psychology	0
Innovative Higher Education	0
Educational Psychology Review	0
Educational Studies	0
Int'l JN of Evidenced Based Coaching and Mentoring	0
Career Development for Exceptional Individuals	2
JN of Vocational Education Research	0
JN of Special Education	0
British Journal of Special Education	0
Remedial and Special Education	0
Journal of Further and Higher Education	0
Studies in Higher Education	0
Total Number of Pertinent Articles	25

In an attempt to identify all returns meeting the review criteria, the lead author searched numerous articles for the terms, “mentoring” and “students with disabilities.” For example, a search for “mentoring” was conducted in articles about leadership, study skills, or career advancement. The phrase “students with disabilities” was sometimes included in articles about at-risk students, women, or students in general, so a search was conducted to determine if any of these articles discussed topics related to this literature review. Additional searches to find relevant narrative sentences or paragraphs within each article included entering the words, “mentor,” “mentoring,” “mentors,” “coach,” “coaching,” “peer,” “peers,” and “peer support,” “students with disabilities,” “disability,” “disabled,” “disabilities,” “handicap,” “handicaps,” “disability services,” and “disabled students.”

After identifying each of the 10 articles meeting the review criteria, the information from the articles was placed in three categories: a) transition to higher education, b) success in higher education, and c) work and higher education.

Transition to Higher Education

Four studies included mentoring related to transition from high school, or a high school equivalent, to the postsecondary education level.

Iowa’s High School High Tech (HSHT) program (Nietupski, et al., 2004), in the Cedar Rapids and the Iowa City areas worked with high school students who had mild disabilities (disabilities vary, but students needed to have an IEP or 504 accommodation plan), were interested in technology, and deemed likely to be successful in postsecondary high tech endeavors. Graduates of the program were encouraged to become mentors and assist mentees with: a) identifying suitable tech career goals, b) choosing appropriate educational or training programs, and c) completing postsecondary programs. Mentoring in this program was intended to serve the dual purpose of keeping graduates connected to the program and providing ongoing mentoring for younger students.

The authors explored the efficacy of the program with both quantitative methods such as evaluation and measurement of program growth, student enrollment, and business partnerships; and qualitative ones, including a case study in their analysis. This program succeeded, based on growth in partner schools from 5 to

15 during the study’s time frame and students from 19 to 119. Tracking postsecondary efforts was problematic and the authors share a lack of data on that subject. The word “mentor,” however, appeared only four times in the 14-page article, and was a minor component of the overall portrayal. The article provides an excellent description and analysis of one type of program serving one group of individuals with disabilities. It is typical, however, of the majority of articles reviewed in a) describing a specific program, b) targeting a specific disability group, and c) including mentoring as one of many components addressed. The next article details more particular demographics.

The Bridge Program (Gutman, et al., 2007), developed as part of the Occupational Therapy (OT) Program at Richard Stockton College in Pomona, New Jersey assessed 18 students with psychiatric disabilities, 11 female and seven male, ages 24-50, who participated in a pilot program to acquire foundational academic and social skills necessary for college coursework, technical training, or completing a GED. The program occurred over three months. It consisted of an initial orientation day and 11 academic modules, such as time and stress management and basic computers skills, with two-hours of lecture/lab followed by one hour of mentoring. This included motivation, identifying educational opportunities, completing admissions and financial aid applications, studying GED and college entrance exams, and applying materials learned in each module to individual educational goals.

The study measured five outcomes on pretest/post-test assessments: a) enhanced skill in academic areas; b) comfort in the student role; c) enhanced social skills; d) overall participant satisfaction; and e) percentage of participants who successfully completed the program and enrolled in further coursework, completed a GED or obtained employment. Additionally, the comfort of the OT students in working as mentors was evaluated on pre- and post-scales.

Sixteen of 18 participants completed the program. Of these, 86% reported the program assisted their preparation for future academic pursuits and 100% relayed the mentoring process helped them “set and achieve personal educational goals” (pp. 32-33). Twelve of the 16 who completed the program enrolled in further education, completed a GED or obtained a vocational internship one month after the program ended.

The authors provided an in-depth analysis of both the successful outcomes and the limitations of this small

program. Because many quantitative and qualitative factors were used to evaluate the success of the program, the authors felt they provided a model for similar projects. However, limitations, including a small sample size, the brevity of the program, specific focus on one disability type and one occupational area, and lack of a control group, made it difficult to predict if this type of program would translate well to other schools or areas. The authors shared their intent to modify future studies to explore these limitations.

Across the Atlantic, Gulam and Triska (1998) conducted interviews with graduating students of a high school in England to understand concerns students with disabilities faced upon completion of high school, including what facilitated a smooth transition from high school to college, and to create a model to ease the transition to further education.

The high school used in the study was small and intended for 11 to 16 year olds with learning disabilities, behavioral problems, visual impairments, communication difficulties, and physical difficulties. In total, 152 students were designated as “special needs” students attending the school. For their sample, the authors randomly selected 50% of the 28 graduates from 1995 (14 students) and 50% of the 36 (18 students) graduates from 1996, with an equal number of males and females selected from both years (seven males and seven females from 1995 and nine males and nine females from 1996). They also conducted less structured interviews with two school principals, the local Careers Advisory service, the regional educational officer in charge of special needs, and four Further Education college (similar to U.S. Community Colleges) principals.

Based on their research, the authors suggest using post-schools as a middle point between high school and college to help ready persons with disabilities for post-secondary education. Following high school graduation, those wishing to go on to college or university would first attend a post-school to ready students for the increasing demands that come with postsecondary education.

While the preceding recommendation may seem out of place in the United States, many educators have lamented to the lead author there is a disconnect between high schools where the specific requirements of the Individuals with Disabilities Education Act (IDEA) are paramount and postsecondary education where students with disabilities are left to fend for themselves, often without adequate training, in enforcing the educational tenets of the ADA. This need appears in the final article

in this section by Alston, Bell, and Hampton (2002) who surveyed 140 parents and 323 teachers in the U.S. midwest about students with learning disabilities and career entry into science and engineering careers.

The article clearly explained certain aspects of the study. For example, 219 females and 140 males participated in the study responding to research questions, such as, “The facilities in science and engineering environments are inappropriate for persons with learning disabilities,” which were then analyzed with a five-point Likert scale (p. 266). The article is vague, though, about who the teachers were and at what level they taught. Conclusions are nevertheless quite specific in stating both parents and teachers believed students with learning disabilities needed mentors or role models to succeed in science and engineering:

Providing learning disabled students with both peer and professional mentors could give these students their first opportunity to identify with and model themselves after persons with learning disabilities successfully involved in science and engineering fields. Students with learning disabilities could use these mentoring relationships to ask basic questions common to persons with learning disabilities such as how to secure extra time on examinations, finding a note-taker, using audio-recorded textbooks, finding an internship/job, etc. In addition, mentors could share from personal experience their strategies for handling negative attitudes and feedback from family members, teachers, counselors, peers, employers, and co-workers (p. 273).

While each of these articles is limited in scope, geography, demographics, and disability groups analyzed, all reach a similar conclusion about mentoring being a needed, valuable, and positive component in the transition from high school to postsecondary education or a career.

Success in Higher Education

The first of only two studies meeting the review criteria in this section, and the first article reviewed with a primary emphasis on mentoring is by Zwart and Kalemeyn (2001) of Calvin College. A Christian school in Grand Rapids, Michigan, with an enrollment of about 4,000 students, the authors reported on a peer-based coaching program directed at students, mostly freshmen, primarily diagnosed with ADHD and/or learning disabilities. Twenty-seven students participated in the

program and 22 volunteered for a control group testing the hypothesis students in the program would show significant improvements in self-efficacy, measured by a Self-Efficacy Scale, and study skills, measured by the Learning and Study Strategies Inventory.

Twenty-two students in the experimental group, who attended between 2 and 10 coaching sessions involving mentoring in self-advocacy, study, organization, and time-management skills, and 20 in the control group, completed posttests one month before the end of the semester.

The authors provided a detailed analysis of program component test results. An initial analysis of both the experimental and control groups differed from later findings, leading the authors to re-analyze the data looking separately at each group. From both analyses, they concluded general self-efficacy improvement occurred, but advised the data should be viewed with caution because of study limitations, including size and disparity between the numbers of the experimental and control groups. Nevertheless, they professed significant improvement in attitude, motivation, use of time management principles, a decrease in anxiety about school performance, selecting main ideas, and test preparation. They concluded, as do the authors of this paper in suggestions for future directions, more research is required to understand the practical value of mentoring programs.

Moving from a small private school study of students with disabilities in Michigan further north to Canada, another study also included a focus on students primarily with learning disabilities. Bat-Hayim (1997) investigated a seminar in the Languages, Literature, and Linguistics Department at York University in Toronto, Canada where the goal was development of critical skills to enable students to handle the writing requirements and other academic demands of university courses.

Bat-Hayim's extensive, longitudinal study of the 10-year program included the role of advanced linguistics students as mentors in weekly discussion and writing labs. These students prepared for their role by receiving training in cohesion analysis, issues about learning disabilities, providing feedback, and conflict resolution techniques. Students in the study spent more total time in the seminar by an average of 50% over two semesters than in their other classes. While formal mentoring had its greatest success during the first semester when students applied techniques learned from mentors in their own studies, some of these peer mentoring relationships continued for entire university careers, providing

perhaps the most concrete evidence of the value of mentoring relationships thus far.

Work and Higher Education

Employment, or a desire to work, is an important need in the lives of individuals with disabilities and four articles of the 10 reviewed focused on this subject in relation to all phases of postsecondary education. The first three of these studies emanated from the University of Washington's DO-IT (Disabilities, Opportunities, Inter-networking, and Technology) Program, which highlights mentoring as an essential ingredient of its activities.

Burgstahler (2001) described a three-year project intended to increase the career readiness of students with disabilities in pre-college and college settings. Collaborating with employers, college staff, parents, mentors, educators, and community-organization leaders, DO-IT sought work placement opportunities for students with disabilities. In total, 60 high school and higher education students completed 104 work-placements over the three-year project period. An estimated 1,000 other students with disabilities benefited from online discussions, workshops, and the dissemination of materials such as videotapes, printed materials, and Web resources on topics ranging from disability rights to types of assistive technology.

Part of this effort involved adult and peer mentors, many of whom had disabilities themselves. Mentors provided strategies, advice, encouragement, and even work opportunities for program participants through in-person meetings, phone calls, and electronic discussion boards.

Project researchers administered a post-participation survey to determine if changes in attitudes and skills occurred after completion of work-based learning experiences. The survey was distributed via email to students who had completed 83 work experiences, and of these, 55 (66%) were returned.

Using seven Likert Scale questions, participants rated the level of change in motivation, workplace skills, job skills, knowledge of personal career interests, computer skills, knowledge of disability accommodations, and knowledge of legal rights. The data indicated participants experienced a positive change in their motivation to work toward a career and an increase in the skills needed in a workplace.

Other research on the DO-IT Program illustrated the benefit of using the Internet to maintain mentor-protégé relationships (Burgstahler, 2002; Burgstahler & Cron-

heim, 2001). By analyzing electronic messages, distributing surveys, and conducting focus groups, the authors learned communication via the use of computers could eliminate many barriers in mentor-protégé relationships caused by time, scheduling problems, distance, and disability. Additionally, participants said computer use enhanced equal treatment because others did not know about their disabilities. Problems of computer-mediated communication participants included difficulty with clarity, a high volume of messages, lack of in-person communication, and technical problems.

The articles (Burgstahler, 2002; Burgstahler & Cronheim, 2001) concluded by recommending practitioners and parents consider using the Internet to help create and support positive mentoring relationships, and that such relationships may help students with disabilities achieve their social, academic, and career potential.

Burgstahler is a leading researcher and disseminator of information about students with disabilities and mentoring. She, and various co-authors, have provided specificity and detail, both quantitatively and qualitatively, about the subject. The three articles detailed here and the plethora of material available on the DO-IT website (<http://www.washington.edu/doi/>) are persuasive about the utility of mentoring in the lives of individuals with disabilities in all aspects of life.

Much more narrowly focused, Noonan, et al. (2004) studied the successful career paths of 17 women with physical and sensory disabilities via in-depth semi-structured interviews. The purpose of these interviews was to gather data and produce a grounded theoretical model to explain factors that contributed to the women's successful career experiences. Questions were asked regarding career paths, influences, coping techniques, attitudes about work, personality, role models, mentors, personal career decisions, and behaviors.

In general, the interviewees stressed the importance of role models and mentors, and described mentors as giving direction, guidance, and advice. Additionally, the majority said they had several mentors and role models, who had appeared later in their lives. They also stated it was important for them to try and act as role models and mentors for other females with disabilities.

The theme of longer-term mentoring relationships weaved its way throughout many of the articles reviewed. The potential for mentoring beyond time boundaries seems to be one result of implementing successful mentoring situations, as discussed with more specificity in the following section.

Discussion

Despite a history of thousands of years of mentoring, research about mentorship and postsecondary education is limited. This literature review pursued the research question: does evidence demonstrate what works in mentoring for students with disabilities attending postsecondary education? To provide a response the authors conducted a database search, a complementary hand-search, and e-mailed requests to three disability and education listservs requesting suggestions for evidence-based articles about mentoring students with disabilities in postsecondary. The database search returned 1,300 hits. Between all three search methods, only 10 articles met all of the following criteria: a) being published in peer-reviewed journals; b) describing evidence-based research about mentoring programs focused on transition to postsecondary education, success in postsecondary education, or matriculating from postsecondary education; and c) and being published after 1990, the year the ADA became law. Of these 10 articles, only four included mentoring and disability in postsecondary education as their primary subject. Using as a criteria, data about the success of transitioning to, remaining in, graduating from, and finding a job after postsecondary education, the literature review revealed almost no data.

Within these 10 articles, however, several themes did emerge, including: a) the positive role of technology; b) the desire to use current mentees to become future mentors; c) a focus on specific disability groups, such as learning disabilities, psychiatric disabilities, and disabilities perceived as mild; d) the usefulness of mentoring for academic, career, and social skills; and e) the value of establishing long-term mentoring relationships.

Locating evidence-based studies that focused on the postsecondary experience of mentoring for students with disabilities was difficult. Mentorship is typically integrated into a larger system of services provided by programs to help young people with disabilities find employment or transition to postsecondary education (Burgstahler, 2001; Noonan, et al. 2004).

Based on the data from these 10 articles, we conclude students with disabilities are provided with the best opportunity for mentoring success when a flexible, multi-layered system of supports exists. Table 5 includes four columns describing supports or resources mentoring programs have used to benefit students with disabilities. Under each of the four columns: a) Training

or Workshops; b) Workshops; c) Technology; and d) Human Supports, are suggestions of ways to implement each of these supports.

Future Directions

The limited evidence-based research available suggests mentoring has had a positive impact on students with disabilities. Further research into mentoring at the postsecondary education level for students with disabilities may enhance the field, leading to better programs de-

signed around effective research-based practices. This will hopefully increase access, retention, and completion of postsecondary education by students with disabilities.

There is a need for evidence-based research of every aspect of mentoring at the postsecondary level. Suggested research topics are listed below:

1. Analyze the role of successful graduates with disabilities who mentor students with disabilities.
2. Document any differences between students with disabilities who have mentors and those who do not.

Table 5

Mentoring Program Components Benefitting Students with Disabilities

Training or Workshops	Workshops	Technology	Human Supports
Support planning for Academic Goal	Promote disability awareness for mentors, mentees, and supporting personnel	Use computers to communicate between mentors and mentees	Encourage appropriate parental involvement
Use trained and motivated mentors	Understanding financial aid	Provide supportive accommodations to help meet adaptive and accessibility needs	Facilitate collaboration between students, parents, educators, community-organizers, and mentors
Learning about services for students with disabilities and available services and supports	Learning job related issues, such as employment searches, résumé writing, and interviewing Study tips, time management skills, and managing the social scene		Tutoring and online editing services to assist with academic performance

3. Describe any differences between students having a mentor with similar disabilities from one with a different disability, or no disability.
4. Analyze which mentor characteristics contribute the greatest positive effect on a protégé with disabilities.
5. Validate specific, effective mentoring practices for training mentors to provide the fullest possible benefits to mentees.
6. Explore the possibility of developing a mentor evaluation tool, similar to a teacher evaluation.
7. Explore benefits, or limitations, to faculty with disabilities who mentor students with disabilities.
8. Describe roles of students with disabilities who mentor faculty, with and without disabilities.

Conclusion

Evidence-based research about mentorship for students with disabilities in postsecondary education is sparse. While there is a general belief, expressed in many articles, that mentoring works in the postsecondary environment, the research does not yet support this feeling, therefore more evidence-based research about many aspects of mentoring is needed.

Understanding what characteristics lead to effective mentors and mentoring programs may enhance the enrollment, retention, and matriculation rates of students with disabilities attending postsecondary institutions. If mentorship enhances positive experiences for students with disabilities in postsecondary education, appropriate research may be invaluable in reversing the dismal graduation rates of students with disabilities and the just as abysmal employment statistics of individuals with disabilities.

References

- Alston, R. J., Bell, T. J., & Hampton, J. L. (Summer 2002). Learning disability and career entry into the sciences: A critical analysis of attitudinal factors. *Journal of Career Development, 28*(4), 263-75.
- Americans with Disabilities Act of 1990, as Amended, 42 U.S.C. 12101 et seq (2008).
- Anderson, J. (April 2000). *Focus groups: Faculty mentors and peer role models*. Research Findings Brief. National Center for the Study of Postsecondary Education Supports, Study Area 4b, Volume 2. Honolulu. University of Hawai'i.
- Axelrod, E., Campbell, G., & Holt, T. (2005). *Best practices for mentoring youth with disabilities*. Partners for Youth with Disabilities. Retrieved from http://www.pyd.org/national-center/GuideBookAssembly_medium150.pdf
- Bat-Hayim, M. (1997). Learning to learn: Learning therapy in a college classroom. *Annals of Dyslexia, 47*, 203-38.
- Bierma, L. L., & Merriam, S. B. (Spring 2002). E-mentoring: Using computer mediated communication to enhance the mentoring process. *Innovative Higher Education, 26*(3), 211-27.
- Burgstahler, S. (2001). A collaborative model to promote career success for students with disabilities. *Journal of Vocational Rehabilitation, 16* (3-4), 209-215.
- Burgstahler, S. (2002). Opening doors: Mentoring on the Internet. Retrieved from <http://www.washington.edu/doit/Brochures/Technology/doors.html>
- Burgstahler, S., & Cronheim, D. (2001). Supporting peer-peer and mentor-protégé relationships on the Internet. *Journal of Research on Technology in Education, 34* (1), 59-74.
- Burgstahler, S., & Crawford, L. (2007). Managing an e-mentoring community to support students with disabilities: A case study. *Association for the Advancement of Computing in Education Journal, 15*(2), 97-114.
- Foster Heckman, E., Brown, S. E., & Roberts, K. D. (Fall 2007). Mentoring Partnership Project: Exploring mentoring practices for students with disabilities in postsecondary education. HEATH Resource Center Newsletter. George Washington University, Washington, D.C. Retrieved from <http://www.ist.hawaii.edu/products/>
- Gulam, W. A., & Triska, J. (1998) Students with special needs: A paradigm for the transition from school to college in the United Kingdom. *Journal of Postsecondary Education and Disability, 13*(2). Retrieved from http://www.ahead.org/members/jped/articles/Volume13/13_2/jped132gulamstudentswithspecialneeds.doc
- Gutman, S. A., Schindler, V. P., Furphy, K. A., Klein, K., Lisak, J. M., & Durham, D. P. (2007). The effectiveness of a supported education program for adults with psychiatric disabilities: The bridge program. *Occupational Therapy in Mental Health, 23*(1), 21-38.
- Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. 1400 et seq (2004).

- National Center on Secondary Education and Transition (NCSET). (2003). *Connecting to success: Mentoring through technology to promote student achievement*. Training manual. Institute on Community Integration, University of Minnesota, Minneapolis. Retrieved from http://ici1.umn.edu/ementoring/CTS_Training_Manual.pdf
- NCD and the Americans with Disabilities Act: 15 years of progress*. (2005). Washington, DC: Author. Retrieved from <http://www.ncd.gov/newsroom/publications/2005/15yearprogress.htm>
- Nietupski, J., et al. (June 2004). Iowa high school high tech goes to college program: Preparing students with mild disabilities for careers in technology. *Journal of Developmental and Physical Disabilities*, 16(2), 179-92.
- Noonan, B. M., Gallor, S. M., Hensler-McGinnis, N. F., Fassinger, R. E., Wang, S., & Goodman, J. (2004). Challenge and success: A qualitative study of the career development of highly achieving women with physical and sensory disabilities. *Journal of Counseling Psychology*, 51(1), 68-80.
- Timmons, J., Mack, M., Sims, A., Hare, R. & Wills, J. (2006). *Paving the way to work: A guide to career-focused mentoring for youth with disabilities*. Washington, DC: National Collaborative on Workforce and Disability for Youth, Institute for Educational Leadership. Retrieved from http://www.ncwd-youth.info/assets/guides/mentoring/Mentoring_Guide-complete.pdf
- Zwart, L. M., & Kallemeyn, L. M. (Spring 2001). Peer-based coaching for college students with ADHD and learning disabilities. *Journal of Postsecondary Education and Disability*, 15(1), 1-15.

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