

Journal of Postsecondary Education and Disability

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From the Guest Editors

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In 1983, the Association on Handicapped Student Services in Postsecondary Education (now known as the Association on Higher Education And Disability, or AHEAD) published the first issue of *AHSSPPE: Bulletin of the Association on Handicapped Service Programs in Post-Secondary Education* (Boney, 1983). Four issues of the *AHSSPPE Bulletin* were published before the journal's name was changed to the *Journal of Postsecondary Education and Disability (JPED)* to reflect the goal to provide more academic and scholarly articles reflecting a developing discipline (Lesh, 1987).

As both AHEAD and the field of disability services evolved over its thirty year history, *JPED* also matured to reflect these changes. Articles about students with disabilities in postsecondary education have been published in 249 different journals. *JPED* alone has published 342 articles, far surpassing the next closest journal, which contained over 60 (Lalor, Madaus, Kowitt, Faggella-Luby, & Dukes, 2014). Inarguably, *JPED* is the leading journal in the field, thus meeting the objective of the Association and the journal's early editors.

This 30th anniversary of the journal provides readers with a unique opportunity to reflect upon the evolution of *JPED*, while simultaneously looking forward to contemplate how the profession and the journal might progress into the next decade and onward. It was this concept that formed the structure of this special issue. The issue begins with two research articles. The first, by Madaus, Lalor, Gelbar, and Kowitt, describes the myriad topics addressed throughout the history of the journal. The second, by Faggella-Luby, Lombardi, Lalor, and Dukes examines the methodologies employed in its research articles. Both articles note trends over time and provide suggestions related to future directions for research.

Next, a series of distinguished authors reflect on several key issues in the field, candidly describe the past and current state of their topical area, and offer suggestions for the future. As you will see, the topics are wide-ranging and the authors' expertise provides readers with both a comprehensive look back and a thoughtful look forward. Fichten, Asuncion, and Scapin write about the field of digital technology and learning and its impact on students with disabilities. Next, Getzel describes the state of the art in research related to self-determination and students with disabilities. McGuire then examines the concept of Universal Design. Both Getzel and McGuire offer several poignant suggestions related to extending the empirical research base in both topical areas. Leake and Stodden use the lens of diversity to address the notion of creating a welcoming and barrier-free campus in the paper that follows. Goodin, a long-time leader in the field, wraps up the issue with candid, insightful, and often-humorous perspectives related to his nearly forty years in higher education and disability services. He also provides powerful recommendations for the field moving forward. The issue concludes with a book review by Neff, who describes her reactions to a new publication that also looks back and to the future, *Beyond the ADA: Inclusive Policy and Practice for Higher Ed* by Vance, Lipsitz, and Parks (2014).

We hope you enjoy this issue, as we certainly enjoyed our opportunity to guest edit, and that you will celebrate the progress we have made as a profession. Most importantly, we hope that you reflect on the work AHEAD and how the field can enhance postsecondary access and outcomes for students with disabilities. *Readers are encouraged to contact lead authors by email to share their comments, reactions, or further thoughts about the topics addressed in this issue.*

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The Journal of Postsecondary Education and Disability: From Past to Present

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Abstract

To recognize the 30th anniversary of the *Journal of Postsecondary Education and Disability (JPED)*, every journal publication was analyzed to determine topics covered and characteristics of the samples studied. This article describes the development of a taxonomy to classify the topical areas examined in the field of postsecondary education and disability, as well as within *JPED*. Results indicate that most articles were concentrated at the program or institution level, followed by articles on students, then articles focused on the development of new constructs in the field, and, last, articles about faculty and non-disability support staff members. Trends over time and implications for future researchers are presented.

Keywords: Postsecondary disability services, research topics, samples, trends over time

Although the *Journal of Postsecondary Education and Disability (JPED)* was first published in the winter of 1987, its origins date back to 1978 and the founding of the Association on Higher Education And Disability (AHEAD), originally known as the Association on Handicapped Student Service Programs in Postsecondary Education (AHSSPPE). In an attempt to promote communication among professionals in the nascent field, the organization published a newsletter called the *ALERT*. As the membership grew, the AHSSPPE leadership established an editorial board to examine the production of a series of monographs and, in the winter of 1983, the first *AHSSPPE: Bulletin of the Association on Handicapped Service Programs in Post-Secondary Education* was issued (Bonney, 1983). Known as the *AHSSPPE Bulletin* (Lesh, 1987), the purpose of early issues was to share information among disability service providers. Issues included sections titled "Speaking Out," "Campus Happenings," "Member News," "Legal and Legislative News," as well as a research-based "Feature" article related to providing disability services. Four volumes of the *AHSSPPE Bulletin* were published between 1983 and 1987.

In 1987, the *AHSSPPE Bulletin* was renamed the *Journal of Postsecondary Education and Disability (JPED)*. Then AHSSPPE President Pat Pierce (1987) commented that, with the change, *JPED* would reflect "the field, rather than association news" and would focus "on academic and scholarly articles as well as practical information from service providers in the field" (p. 2). According to the editor (Lesh, 1987), this change reflected "the growth and development of the field of postsecondary education and disability and will give us, as practitioners, a vehicle for exchange of information that is both theoretical and practical" (p. 1). Additionally, the editor called for "Feature Articles" that were both research- and theory-based, commenting "because ours is a relatively new field, we have a unique opportunity to make an impact by researching *and* writing about the various aspects" (p. 1, emphasis original). In addition, the editor solicited articles that were "Practical Applications from the Field" and presented "innovative and practical programs...of direct practical value to those in the field" (Lesh, 1987, p. 1). "Book Reviews," "Research in Progress," and articles about "Comments, Opinions, and Issues" were also solicited.

Thirty years after the first issue of the *AHSSPPE Bulletin*, and more than a quarter century since being renamed *JPED*, the journal continues its mission to serve as a scholarly outlet for the field of postsecondary disability services. *JPED*'s website states that the journal is:

The leading forum for scholarship in the field of postsecondary disability support services...bringing to the field scholarly publications on a variety of related topics that emphasize research, issues, and trends related to the theory and practice of postsecondary disability services (AHEAD, 2014a).

Currently, the journal solicits articles that include "Research," "Integration," "Innovation," and "Policy Analysis," as well as "Practice Brief Manuscripts" that describe practices that could eventually lead to empirical studies (*JPED* Author Guidelines, 2014).

According to McFarland, Williams, and Miciak (2013), "professional journals provide researchers and practitioners alike a means by which they may stay informed of such trends and issues as well as the latest research" (p. 60) and, in so doing, influence policy, practice, and professional development. Plotner, Shogren, and Strauser (2011) echoed this point, noting, "professional journals play a key role in disseminating knowledge and in the development for content for professional education" (p. 28). Indeed, of the 1,342 published articles on disability and higher education between 1958 and 2012, 25% were published in *JPED*, clearly reflecting the journal's importance as an outlet for scholarly work (Dukes et al., 2014).

Given *JPED*'s critical role as a knowledge disseminator in the field of postsecondary disability services, conducting an analysis of articles published in the journal throughout its history can provide valuable insight into the field as a whole. Such an examination can help to identify trends in research, as well as areas that are in need of additional study (Madaus et al., 2013; McFarland et al., 2013). Additionally, it can help to "identify with whom sufficient research has – or has not – been conducted" (Madaus et al., 2013, p. 2) and to identify evidence-based practices and the populations with which they have been used effectively (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). Moreover, an examination of this nature can serve as a basis for the development of standards of research on higher education and disability. The 30th anniversary of *JPED* provides an opportune time to conduct such an analysis.

The purpose of this study was to examine the broad and secondary topical areas represented in each article published over the 30-year history of *JPED* ($n = 336$).

Articles were also examined to determine which presented original data (e.g., quantitative or qualitative) and which did not present original data. Of the articles that were data-based, information on the samples used and location of the studies were codified. Finally, trends over time were analyzed.

Method

The results of this study are part of a larger coding project, in which articles ($n = 1,342$) addressing postsecondary education and disability published between 1955 and 2012 were analyzed (Literature Mapping Group, 2014). For the present study, only articles published in *JPED* ($n = 336$) were examined. Hardcopies of volumes 1 to 4 of the *AHSSPPE Bulletin* were located, while issues of *JPED* from 1987 to 2012 were accessed through electronic databases. Volumes 5 to 8 were compiled as a single document resume (Lesh & Ozer, 1990) made available via ERIC, while volumes 9 to 25 were retrieved from the AHEAD website. Each electronic article was uploaded to a cloud server to allow the research team remote access.

Domain Development

No taxonomy exists for organizing the postsecondary disability scholarly literature. Thus, the research team initially identified a set of categories, called domains, which reflected the topics covered in published articles broadly related to disability services in higher education. An initial set of domains and corresponding topics within each (subdomains) were categorized based on a cursory review of relevant articles. Next, articles from 10 issues of *JPED* were reviewed to determine how those articles fit into the initial domains and subdomains. Revisions were made, and the domains and subdomains were examined by two prior editors of *JPED* to capitalize on their broad knowledge of the extant literature in the field. Based upon their feedback, the domains were again evaluated, with two reviewers for each article, through a review of five additional issues of *JPED*. Inter-rater agreement for this review was 100%, and the domain definitions were again refined.

The resulting four domains, their definitions, and corresponding subdomains were sent to a panel of eight former *JPED* editors for content validation. They were asked to rate the extent to which the definitions were clear, the extent to which the subdomains fit into the broader domain (using a 4-point Likert scale), and to provide suggestions related to any missing domains and subdomains. Reviewers indicated they "agreed" or "strongly agreed" that the definitions were clear and that the subdomains fit within the respective

domains. Suggestions related to missing areas or recommendations that terms be clarified were reviewed by the research team. Following this the domain definitions and corresponding subdomains were finalized (see Table 1).

Inclusion and exclusion criteria were also established. To be included in the study, the article had to be about postsecondary education for students with disabilities (broadly considered to include disability programs and services, faculty and non-disability support staff, and constructs). Articles primarily about secondary students in transition, transition-aged programs, non-degree-granting postsecondary programs, or college students without disabilities were excluded from the study.

Instrument Development

The research team used an iterative process to develop the electronic coding instrument (available from the first author on request). An initial pilot instrument was developed based upon a similar coding project related to secondary transition (Carter et al., 2013; Madaus et al., 2013) and adapted for the present study. Articles were coded as to whether they included original data and whether study location, sample size, and participant demographics were reported. Additionally, articles were coded for research methodology, domain, and subdomain categorization. Across the coding sheet, 148 choices were possible. The research team conducted three rounds of pilot coding and instrument revisions to ensure that the directions were clear and the survey skip logic was accurate, and to determine potential errors in the coding process.

Coding Process

Each article was given a unique identification number, which allowed the coding to be linked to the citation and results to be linked to each research team member for reliability calculations. Two members of the research team coded each article with one being randomly assigned as the primary coder. When disagreements in the coding of items were identified, the two coders met to rectify discrepancies. When agreement could not be reached, a third reviewer coded the article. The overall reliability (calculated as percent agreement) was 0.93 and reliability measures for each domain can be found in Table 1.

Several of the initial subdomains were collapsed in order to facilitate analysis. For example, the Student-Level Studies domain included 13 subdomain options. However, because of the relatively small number of articles coded ($n = 336$), several of the subdomains contained cell sizes too small for analysis. Thus, the 13

student-level subdomains with similar themes (e.g., the mainstream technology use and assistive technology use subdomains) were collapsed to form the mainstream/assistive technology use subdomain resulting in a total of eight subdomains for analysis purposes. Likewise, the Program or Institution-Level domain was reduced from 16 subdomains to six; the Faculty or Non-Disability Support Staff-Level domain from seven to three; and the Construct Development-Level domain from seven to three subdomains.

In order to analyze trends over time, the thirty years of the journal were broken into six-year increments resulting in five evenly distributed reporting periods, and enabling each period to have sufficient data points for analysis.

Results

In total, 336 articles published in *JPED* from 1983 to 2012 were reviewed. Fifty-three (15.8%) articles did not meet the inclusion criteria and, therefore, were not included in subsequent analyses. The remaining 283 articles are described. It should be noted that seven articles (2%) met the study's inclusion criteria, but did not fit clearly within the domain/subdomain structure outlined above. Figure 1 shows the number of articles published each year that fit the inclusion criteria. It should also be noted that there were no issues published in 1991 or 1999, and that the number of published articles steadily increased over the past five-year period (2007 to 2012).

Domains/Subdomains

As described above, articles were sorted into broad domains and then respective subdomains to allow for aggregated analyses of topics covered in the journal. Thirty-six percent ($n = 101$) of the articles published in *JPED* were coded as fitting the Disability Program or Institution-Level domain. The majority of these (57.4%, $n = 58$) provided general program descriptions, while 25.7% ($n = 26$) described programs for specific cohorts of students (e.g., students with psychiatric disabilities), and 22.8% ($n = 23$) described institutional compliance or policies. An additional 13.9% described the professional experiences of disability services staff members. Of these, 67 (66%) did not present original data. Of the 34 articles (34%) that presented original data, 76% ($n = 26$) were descriptive quantitative studies while 14.7% were qualitative studies and 9% utilized mixed methods designs. No articles utilized a group or single subject experimental design.

Table 1

Domain Descriptions, Subdomains, and Inter-Rater Agreement

Domain	<i>n</i>	Domain description	Subdomains	<i>n</i> ^a	Percent agreement
Student-level studies	92	Articles describe experiences and/or perceptions of students with disabilities in and after higher education.	Experiences, perceptions, knowledge, and attitudes of SWD	62	0.92
			Access, accommodations, adjustments	16	
			Profiles/statistics of SWD and graduates	16	
			Learning/using study skills or learning strategies	10	
			Mainstream/assistive technology use	9	
			Career development	5	
			Self-determination	5	
			Other	2	
Program or institution-level studies	101	Articles describe service provision by the disability services office in a higher education institution. They can also relate to institutional policies and procedures pertaining to students with disabilities.	Description of disability programs	58	0.91
			Programs for specific cohorts	26	
			Institutional compliance, policies/procedures	23	
			Policies and procedures	21	
			Experience, knowledge, attitudes, beliefs, and professional development of disability service providers	14	
			Other	5	
			Other	5	
Faculty/non-disability support staff-level studies	38	Articles describe knowledge, attitudes, and beliefs of faculty and non-disability services personnel to enhance access to higher education for students with disabilities. They can also relate to education or support for faculty and staff in this practice.	Knowledge, attitudes, beliefs, training, and teaching practices of faculty	32	0.96
			Knowledge, attitudes, beliefs, training, and practices of non-disability support staff	9	
			Other	1	
Construct Development-level studies	45	Articles describe development, evaluation, or validation of a variable that including development/validation of assessment instruments, evaluation metrics, theoretical models of service delivery, standards of practice, or ethics. The variable must be under proposal, in development, or being used in practice to gather empirical evidence.	Conceptual models, service delivery instruction (e.g., Universal Design)	28	0.93
			Other (including disability studies, evaluation metrics, standards of practice)	12	
			Assessment instruments (development, validation, use to develop diagnostic profiles)	5	

Table 1 (Continued)

No clear fit	7	Articles meet criteria for inclusion, but do not meet criteria for domains.	1.00
Does not fit criteria	53	Articles do not meet criteria for inclusion within the study.	1.00
Total	336		0.93

Note. SWD = Students with Disabilities.
^aArticles can fit one or more subdomains.

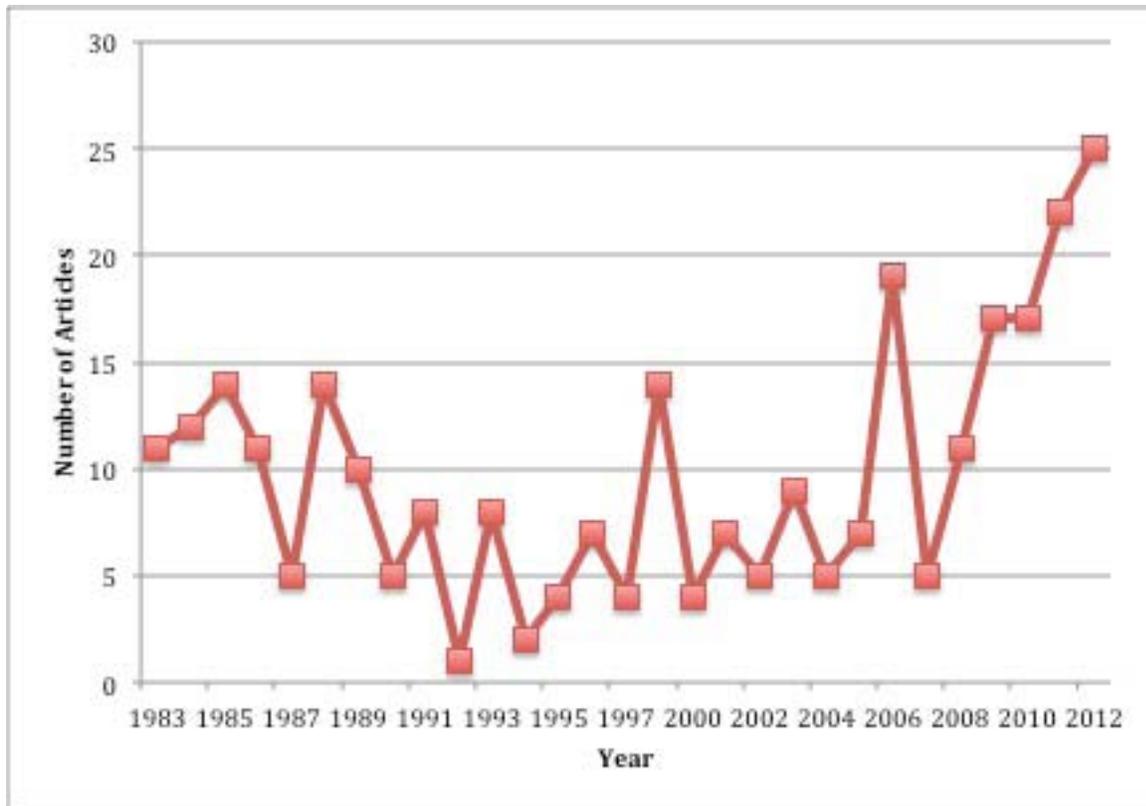


Figure 1. Number of articles meeting inclusion criteria by year.

The Student-Level domain contained the second largest set of articles (32.5%; $n = 92$). The vast majority of these (67.4%; $n = 62$) described the experiences of students, while 17.4% ($n = 16$) focused on student access and accommodations and 17.4% ($n = 16$) reported statistics on students with disabilities. Eighty (87%) of the articles presented original data. Of these, 44% were descriptive quantitative studies and 35% were qualitative in nature. Fourteen percent utilized mixed methods and 4% employed group designs. The Construct Development-Level domain contained 45 (16%) articles. Of these, the majority (62%; $n = 28$) were about conceptual models of service delivery, with 27% labeled as "other," including such topics as evaluation metrics and standards of practice. Twenty-eight of the Construct Domain-Level articles (62%) did not contain original data. Of the articles that presented original data, 41% were descriptive quantitative and 29% were qualitative studies. Finally, 13% of the articles were coded as the Faculty or Non-Disability Staff-Level domain, with 84% ($n = 32$) of the articles focused on faculty, and 24% on professional staff. Seventeen (45%) did not present original data. Of the articles that presented original data, 57% were descriptive quantitative studies.

Study Demographics

Slightly more than half, or 54.4% of the articles ($n = 154$), presented original data while 45.6% ($n = 129$) were articles that described programs, policies, laws, or other non-data based topics. Faggella-Luby et al. (this issue) present more detail regarding studies with original and non-original data as well as trends over time and by domain. The 154 articles that presented original data were further examined to determine a variety of "demographic" variables, including study setting, sample size, and information about study participants (e.g., disability type, class standing, gender and ethnicity). The vast majority, or 87% ($n = 134$), was conducted in the United States, 8% ($n = 13$) were conducted in Canada, and 4.5% ($n = 7$) were conducted in other countries. Likewise, a majority of the studies (81.2%) were conducted at 4-year universities or colleges in the United States ($n = 125$) versus 27% that were conducted at 2-year colleges in the United States ($n = 41$) and 13% that were conducted at international institutions ($n = 20$). Finally, 64% of the studies ($n = 98$) included college or university students, while 44% ($n = 68$) included non-university students (e.g., faculty, staff) as participants.

Sample characteristics. The sample sizes of the studies featuring students ($n = 98$) were broken into four groups for additional analysis: 1-10; 11-50; 51-

100; and 100+ students. Over a third of the studies ($n = 32$, or 33%) had sample sizes of more than 100 students, followed by studies with 11-50 students ($n = 30$ or 31%) and those with 51-100 students ($n = 21$ or 21%). Each study was also examined to determine the race/ethnicity, disability type, gender, and class standing of the sample members. In order to be counted for analysis, data had to be presented with frequency counts for each category and for each cohort within the category. Studies that reported percentages only were not included. Only 71.4% of the studies ($n = 70$) presented clear information on the disability types in the sample, followed by 52% ($n = 51$) of the studies that provided clear information on the gender of the sample, 22.5% ($n = 22$) on the class standing of the sample, and 18.3% ($n = 18$) on the race/ethnicity of the sample.

All but one of the studies that included clear information about the racial/ethnic makeup of their sample included individuals of European descent (94%; $n = 17$), 50% ($n = 9$) included individuals who were African-American, 33% ($n = 6$) included individuals who were described as Hispanic, and 33% ($n = 6$) included individuals who were categorized as Other. All of the studies that included information on gender ($n = 51$) included female participants while most of the studies (92% or $n = 47$) also included male participants. Of the 22 studies that included information about class standing, only six studies (27.2%) included information on graduate students and six included alumni, while no studies reported information on individuals who had dropped out of college. Students with learning disabilities were in 57% of the studies ($n = 40$), followed by students with orthopedic impairments (37%; $n = 26$), visual impairments (30%; $n = 21$), and hearing impairments (26%; $n = 18$). Twenty-four percent ($n = 17$) of the articles also included students without disabilities. In regard to studies with non-student participants, faculty ($n = 28$) and disability service providers ($n = 26$) were the most represented categories.

Trends Over Time

Domains/subdomains. As noted, most of the articles published in *JPED* were categorized into the Disability Program or Institution-Level domain. This was especially true during the first six years of the journal when an average of 6.5 articles per year were categorized in this domain, compared to the next largest domain, Student-Level studies ($n = 92$), which had an average of 1.7 articles per year during this period. Since then, the relative proportion of Program or Institution-Level articles decreased over time, with the exception of the past six years (2007 to 2012), during which there has been a resurgence in the number of

articles in this domain and with a particular focus on disability service providers ($X = 5$ articles per year). Articles that described general disability service programs were most common, especially in the first six years of the journal ($X = 3.67$). The frequency of these articles dropped over the next 18 years, to an average of less than one per year, and then increasing to an average of 2.83 in the period from 2007 to 2012. The second most common type of article described programs for specific cohorts of students, with an average of approximately one per year published in the first six years. This decreased to an average of 0.2 articles in each year of the three six-year periods that followed, and then increased to average of 2.2 in the period from 2007 to 2012. In contrast, the Student-Level Studies domain steadily increased over time from an average of 1.7 in the first six years of the journal to 5.7 in the last six years (2007 to 2012).

Articles in the Faculty or Non-Disability Support Staff-Level domain were most focused on campus faculty in each of the six-year periods. In fact, articles about faculty increased over time, with five published in the first six-year period and then increasing to eight and fifteen in the last two six-year periods respectively (2001 to 2006 and 2007 to 2012).

Articles categorized within the Construct Development-Level domain were primarily focused on conceptual development (e.g., Universal Design). Eleven articles were published in both of the two recent 6-year periods from 2001 to 2006 and 2007 to 2012.

Study demographics. The number of published articles that featured original data steadily increased over the thirty years of the journal. In the first six-year period, only 17 out of 67 articles featured original data (an average of 2.8 articles per year). In comparison, during the last six-year period (2007 to 2012), 63 out of 98 published articles contained original data (an average of 10.5 articles per year). The number of studies located in the United States increased over time from an average of 2.72 per year for the first eighteen years to 7.1 during the last twelve years. The studies taking place in non-U.S. locations were sporadically included over the last 18 years (an average of less than one per year).

Sample characteristics. As noted, articles with original data were then analyzed for information about sample characteristics. Articles that contained samples of 11 to 50 students increased from a mean of 0.2 during the first six-year period to 2.2 during the period from 2007 to 2012, while the average number of articles with samples of more than 100 students increased from 0.5 in 1983 to 1988, to 2.83 in 2007 to 2012. Articles clearly describing disability categories being studied increased from an average of 0.7 articles per

year in 1983 to 1988, to 5.3 in 2007 to 2012. Likewise, articles that clearly described the gender of the sample members increased from an average of 0.7 in 1983 to 1988, to 3.6 in 2007 to 2012.

Discussion

Areas of Research

Throughout its thirty year history, the greatest percentage of articles published in *JPED* were concentrated in the Program or Institution-Level domain, which describe service provision by the disability services office in a higher education institution, as well as institutional policies and procedures related to students with disabilities. Given the journal's initial focus on sharing information among service providers, it is understandable that the most common type of articles published describes disability service programs in general, followed by those that describe program models for specific cohorts of students and policies and procedures for ensuring institutional compliance. It is interesting that the frequency of these descriptive articles decreased over time, but increased in the most recent analysis period from 2007 to 2012. This is possibly a function of the curvilinear number of articles published in the journal (see Figure 1), but it is also possibly a reflection of articles that described services for cohorts of students that increased in various time periods (e.g., learning disabilities, autism spectrum disorders, psychiatric disabilities, wounded warriors). An important next step for the field will be for researchers to move from descriptive studies to evaluative ones that clearly describe what components of these programs work, with what students, and in what situations.

The next most common set of articles, and the one that has been most steadily increasing over the life of the journal, relates to students with disabilities. Most of these articles describe the experiences, perceptions, and attitudes of students; followed by articles about access, accommodations, academic adjustments, and statistical profiles of students with disabilities. As with articles about programs, most of these articles are descriptive and there is a need for more data-based articles that evaluate practices that work with students. Of particular note is that few articles have been published on the life-long skill area of self-determination. For example, although studies have measured students' experiences related to self-determination, only five articles related to teaching these important skills have been published over the thirty years of *JPED*. It is not clear if this is a function of students arriving on campuses with these skills or if much of the research in this area is published in other journals. Getzel (this issue) provides additional

detail about the importance of self-determination and offers suggestions for researchers to address this paucity of research.

Interestingly, there were no more than two articles per period about learning strategies/study skills for the first four periods, but five were published in the period from 2007-2012. Likewise, there was only one article published about student self-determination in the first 24 years of the journal, but four in the last six-year period. Clearly, rigorous and data-based studies that describe what techniques work, with which students, and in which specific settings in each of these areas would benefit the field.

Articles related to construct development are increasingly emerging in the journal. In fact, 11 articles related to this domain were published in each of the past two six-year time periods analyzed. Many of these articles describe the use of Universal Design (UD) in instruction and in program development; this is likely reflective of Federal grant programs from the Office for Postsecondary Education that ran over the past twelve years and that focused largely on student access via the use of UD models (McGuire, this issue). It could be argued that UD articles could fall into other domains within this taxonomy. However, given the recent emergence of this concept and the relatively scarce empirical evidence base related to its effectiveness (see McGuire, this issue), it was placed into the Construct Development-Level domain. In time, as evidence develops, articles related to UD could be moved into other areas within the domain taxonomy.

Study “Demographics”

Although it is not surprising that the majority of articles that presented original data were based in the United States, the relatively low number of data-based articles published in the journal (13%) from other countries was interesting. The AHEAD website notes that the membership consists of 2,700 members from 11 countries (www.ahead.org/about; 2014). The relative paucity of data-based studies from international locations presents an opportunity for researchers. In addition, there is clearly a need for more studies at the 2-year institutional level. The majority of students with disabilities enroll in 2-year institutions (Newman et al., 2011), yet only 27% of the data-based articles published in the journal examine this setting. This likely reflects both another void in the literature and opportunity for researchers.

Perhaps of most concern is the relatively poor description of the student samples in the methods sections of published articles. Only 45% of the articles clearly described the disability types of the students under study, only 33% clearly reported the gender composi-

tion of the sample, and only 11.7% clearly described the race/ethnicity of the students. This lack of reporting makes it impossible to discern which practices work best with which students. Although some progress has been made in the last six-year period in relation to the inclusion of descriptions of student disability and gender in publications, more attention must be paid to these essential descriptions in future data-based studies. Additionally, of the studies that described the sample, only 50% of the studies had sample members who were African-American and only 33% had sample members who were Hispanic. This is certainly an area that must be addressed in future research.

Limitations

The current results must be considered in light of the fact that the data reported in this study only reflect articles published during the thirty year life of the *Journal of Postsecondary Education and Disability*. Indeed, the articles studied here ($n = 336$) represent 25% of all articles published about disability services in higher education from 1955 to 2012. Thus, a similar analysis with the larger set of articles is warranted to more fully understand the field’s total literature base.

The analysis was framed by the use of the domains and respective subdomains described in this article. Clearly, the knowledge and judgment of the research team shaped the identification, development, and description of these areas; however, content validation was evaluated using an iterative process with frequent feedback from experts with unique knowledge of the extant literature in the field (e.g., a panel of prior editors of *JPED*). It is hoped that this taxonomy of domains will provide researchers with a map of the body of research that can be used in future research. Again, repeating this analysis with the larger body of literature related to postsecondary education and disability is essential.

Summary

During its history, AHEAD has adapted both Professional Standards and Program Standards to guide the professional practice of postsecondary disability services. This current project provides a starting point to develop research standards for the field -- another step in guiding professional practice. This study adds to the extant literature by providing a taxonomy to guide research in the form of the domains and subdomains. The present study and the study by Faggella-Luby et al. (this issue) provide the profession with a baseline by which to determine in what areas research has been conducted in its main professional journal, in which

areas more research is needed, and areas of concern related to study descriptions. It is hoped that the present work provides a starting point for the development of identifying evidence-based best practices and research standards in the field.

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Methodological Trends in Disability and Higher Education Research: Historical Analysis of the Journal of Postsecondary Education and Disability

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Abstract

In order to assess the status of the research base that informs “what works” for students with disabilities in higher education, it is necessary to conduct an examination of the methodologies used in the literature. The authors of the current study analyzed the methodological trends across the thirty-year lifespan of the *Journal of Postsecondary Education and Disability*, spanning the years 1983 to 2012. Every article published by *JPED* was coded using an electronic tool comprised of four domains and corresponding subdomains. The authors concluded that data-based studies constitute more than half of all studies published in the *Journal*, with the majority of articles being descriptive and quantitative in nature. Only six studies used a control or comparison condition. Additional findings and implications are discussed.

Keywords: Methodology, evidence-based practices, quantitative research, qualitative research, data-based articles, postsecondary education, disability

Today, the near nation-wide adoption of Common Core State Standards ([CCSS]; National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) and college and career-ready initiatives (U.S. Department of Education, 2010) in K-12 settings has brought greater attention to issues of equitable access to postsecondary education for students with disabilities. The reauthorization of Individuals with Disabilities Education Act (IDEA) in 1997 and 2004 emphasized the inclusion of students with disabilities in accountability reporting, thus further raising both standards and expectations for students with disabilities. While these federal policy initiatives are certainly encouraging, the true challenge is to ensure that students with disabilities have equitable access to postsecondary education. In order to promote authentic

access, there must continue to be advancements in the process of education, programs, and policies in higher education that result in improved outcomes for students with disabilities.

Together, policy changes and significant social movements have enabled disability to be included in the greater discourse regarding institutional diversity. Just as with race, ethnicity, socioeconomic status, and sexual orientation, disability is merely a quality of the human condition; in other words, a way in which people are alike and different (Wehmeyer, 2013). The Higher Education Opportunity Act (HEOA) of 1965 was among the earliest policies directed at ensuring equal opportunity and access (Madaus, Kowitt, & Lalor, 2012). Among the seven titles of the original policy were provisions for financial aid programs, scholarships, insured loans, inter

est subsidies, and work-study programs. Decades later, in 2008, “programs to provide students with disabilities with quality postsecondary education” was specified among the general provisions of the reauthorization (Madaus et al., 2012, p. 35).

As a result, higher education has experienced a significant and rapid increase in enrollment of students with disabilities over the past 40 years. Today, students with disabilities comprise approximately 11% of the college student population (Newman et al., 2011). Higher education has long been thought of as an opportunity for upward social mobility; in fact, the average college graduate earns 84% more over a lifetime than an individual with only a high school diploma (Carnevale, Rose, & Cheah, 2011). Yet, equal opportunity to both access and earn a college degree has long been unavailable to many in American society (e.g., students of color, women). While considerable progress has been made toward addressing this inequality, persistent disparities remain insofar as access to and success in postsecondary education for people with disabilities. For example, findings from the National Longitudinal Transition Study -2 (NLTS2) show dismal degree completion rates for student with disabilities; specifically 41% for 2-year and 34% for 4-year postsecondary degree programs over an 8-year period (Newman et al., 2011). As such, for people with disabilities, degree attainment in postsecondary education remains a persistent obstacle.

Identifying Trends in the Literature on Students with Disabilities in Higher Education

Chronology of research and programs. Research and the subsequent literature base serves as a vital resource for evaluating the effectiveness of programs and supports to determine trends in research that includes college students with disabilities. Of 1,342 research articles on disability and higher education over the past 55 years, 25% were published in the *Journal of Postsecondary Education and Disability* (*JPED*); Dukes, et al., 2014).

JPED serves as the primary professional journal for personnel who work to advance the goal of full participation by students with disabilities in higher education. *JPED* is celebrating its thirtieth year of publication, and this special issue honors this historic occasion. Originally published by the Association on Handicapped Student Service Programs in Postsecondary Education (AHSSPPE), who renamed their organization the Association on Higher Education And Disability (AHEAD) in 1992, *JPED* has been the publication outlet for more scholarship about the diverse experiences of students with disabilities in college than any other journal. Its rich history makes it an excellent source for examining the methodological trends common in the literature base

about services and supports for and the experiences and beliefs of college students with disabilities.

In order to assess the research base for programs and practices to improve outcomes for students with disabilities in higher education, a close examination of the methodologies used throughout the literature is warranted. Thus, the purpose of the current study was to examine the methods used to conduct research on disability within the context of postsecondary education throughout the thirty-year history of *JPED*.

Method

The present study is a secondary analysis of data collected as part of a review of the literature on postsecondary education and disability published between the years 1955 and 2012 (Dukes et al., 2014). Articles ($n = 336$) from 25 volumes of *JPED* and its predecessor, the *AHSSPPE Bulletin*, were analyzed for the present study (see Madaus, Lalor, Gelbar, & Kowitt, this issue). Volumes 1-4 of the *AHSSPPE Bulletin*, published between 1983 and 1986, were found in hardcopy as they are not presently available electronically; volumes 5 – 25 of *JPED*, published between 1987 and 2012, were accessed electronically. Volumes 5 – 8 of *JPED* were obtained via ERIC as a compilation (Lesh & Ozer, 1990) and volumes 9 – 25 were retrieved from the AHEAD website. The hardcopies of the *AHSSPPE Bulletin* were made available to four research team members, while the *JPED* articles were made available to the complete research team by use of a cloud server (i.e., Dropbox™).

All 336 *JPED* articles published between 1987 and 2012 were reviewed by a seven-person research team. Of the 336 articles, 283 met the criteria for inclusion in the study. To be included, articles were about postsecondary education for students with disabilities (broadly considered to include faculty, disability services, etc.). Furthermore, the article focused on one or more of the following topics and/or populations: (a) programs and services for accepted students into degree-granting programs at a 2- or 4-year college or university; (b) programs, services, or experiences of matriculated students; or (c) articles about the experiences of students who had withdrawn or graduated from a degree granting program at a 2- or 4-year college or university. Articles ($n = 53$) about secondary students in transition, transition-aged programs, and non-matriculated students were excluded from the study.

Domain and Subdomain Development

In the absence of an established taxonomy to classify articles on postsecondary education and disability, the research team undertook the task of identifying themes within the literature that could form the basis of a taxonomy. The taxonomy is organized around four distinct levels of study dealing with both different and specific units of analysis (i.e., Students; Programs or Institutions; Faculty or Non-Disability Support Staff; and Construct Development). As a matter of procedure, a no-fit code was created for current anomalies in the research literature. These levels or collections of studies became the four domains, with related subdomains and definitions, used as the taxonomy classifications (see Table 1). Domain development followed a rigorous and iterative process of review including multiple stages of pilot testing, formal review by previous editors of *JPED*, and a final review by the research team (see Madaus et al., this issue, for more). It should be emphasized that the domains are not rank-ordered by level of importance nor are they hierarchical in nature. The domain numbers have no meaning other than to convey how classifications resulted from the analysis.

Instrument Development

The electronic coding instrument used for the present study was developed through an iterative process of pilot testing and refinement (available from the first author on request). The procedures for developing the instrument were based on those used for similar literature coding studies on the topic of career development and transition of individuals with disabilities (Carter et al., 2013; Madaus et al., 2013). Developed in SurveyMonkey™, the study's instrument consists of 148 possible items. Items address whether an article includes original data (e.g., not secondary data analyses such as NLTS2 or NSSE), whether it is data-based or non-data-based, the research methodology employed, and domain and subdomain identification. Skip logic directed coders to follow-up questions based on prior choice selections (e.g., selection of the Student-Level Domain prompted selection of related Student subdomains). In total, the instrument underwent three rounds of pilot coding to adjust instrument clarity and skip logic accuracy (see Madaus et al., this issue, for more information).

Coding Process

Unique alphanumeric codes were developed for each article, allowing for results to be linked to year of publication and matched to coders for reliability analyses. Two research team members coded each article. When coding disagreements were noted, the relevant study team members met to address discrepancies with

the goal of reaching consensus. When discrepancies could not be resolved between the initial two coders, a third study team member reviewed the articles and served as an arbiter.

Inter-Rater Reliability

As indicated, members of the research team coded each article ($n = 336$) from all journal volumes ($n = 30$). All data were subjected to an inter-rater reliability check. Across the four domains, and including the no-fit domain, overall reliability between the two primary coders was 91.3%. Inter-rater reliability of coders for the individual domains was as follows: Student-Level Domain (91.8%), Program or Institutional-Level Domain (88.2%), Faculty or Non-Disability Support Staff-Level Domain (94.3%), Construct Development-Level Domain (91.4%), and No Fit (100%).

Results

This study primarily sought to identify articles reporting original data throughout the thirty-year history of *JPED*.¹ Results indicate that data-based studies constitute more than half (54.4%, $n = 154$) of the 283 total articles from 1983-2012. Data-based studies largely presented experiences, perceptions, knowledge, attitudes, or beliefs of students with disabilities pursuing higher education. Additionally, studies examined faculty knowledge, attitudes, beliefs, training, and teaching practices as well as descriptions of postsecondary disability programs. The remaining 129 non-data-based studies (45.6%) focused on institutional compliance, descriptions of disability programs, conceptual models of instruction and service delivery, and programs for specific cohorts of students with disabilities. Results are further explored by trend across five six-year increments (e.g., 1983-1988, 1989-1994) and by the domain structure taxonomy developed by the Literature Mapping Group (2014) research team (see Madaus et al., this issue) below.

Data-Based Trends

Overall. Of the 154 data-based articles, the majority (28.6%, $n = 81$) provided descriptive-quantitative data (see Table 2). The second most common methodological design was qualitative with 15.1% ($n = 43$). Other designs included group (2.4%, $n = 7$), single subject (1%, $n = 3$) and mixed method (7.1%, $n = 20$). Quantitative designs represented 72% of all data-based articles with simple descriptive designs (22.5%, $n = 64$) and comparative designs (12.7%, $n = 36$) being the most common.

¹ Methodological analysis of features in non-data-based articles is beyond the scope of this paper.

Table 1

Domain Descriptions

Domain	Domain Description
I. Student-Level Studies	Articles describe experiences and/or perceptions of students with disabilities in and after higher education.
II. Program or Institution-Level Studies	Articles describe service provision by the disability services office in a higher education institution. They can also relate to institutional policies and procedures pertaining to students with disabilities.
III. Faculty or Non-Disability Support Staff-Level Studies	Articles describe knowledge, attitudes, and beliefs of faculty and non-disability services personnel to enhance access to higher education for students with disabilities. They can also relate to education or support for faculty and staff in this practice.
IV. Construct Development-Level Studies	Articles describe development, evaluation, or validation of a variable, including development/validation of assessment instruments, evaluation metrics, theoretical models of service delivery, standards of practice, or ethics. The variable must be under proposal, in development, or being used in practice to gather empirical evidence.
No Fit	Articles meet criteria for inclusion in the study, but do not meet criteria to be included in any of the four domains.

Note. The domain numbers are not intended to suggest a hierarchical nature or rank ordering of the topics.

Table 2

Percentage of Data-Based Articles by Method and Type by Year

Design category/Type of design	Publication Year Increments											
	1983-1988		1989-1994		1995-2000		2001-2006		2007-2012		All Years	
	N	%	N	%	N	%	N	%	N	%	N	%
Study reported original data	17	25.4	20	58.8	19	57.5	35	67.3	63	64.3	154	54.2
Descriptive-quantitative designs	13	19.4	10	30.3	10	30.3	18	34.6	30	30.6	81	28.6
Group designs	1	1.5	0	0.0	2	6.1	1	1.9	3	3.1	7	2.4
Single subject designs	0	0.0	0	0.0	1	3.0	1	1.9	1	1.0	3	1.0
Mixed methods designs	2	3.0	2	5.8	0	0.0	4	7.6	12	12.2	20	7.0
Qualitative designs	1	1.5	8	23.5	6	18.1	11	21.2	17	17.3	43	15.1
Quantitative designs												
Simple descriptive design	12	17.9	9	28.1	8	24.2	14	26.9	21	21.4	64	22.5
Comparative design	5	7.5	3	9.4	1	3.0	8	15.3	19	19.3	36	12.7
Correlation design	0	0.0	1	3.1	3	9.1	1	1.9	10	10.9	15	5.2
Qualitative designs												
Phenomenological	2	3.0	7	20.6	6	18.1	8	15.3	17	17.3	40	14.1
Case studies	1	1.5	2	5.8	0	0.0	1	1.9	9	9.1	13	4.6
Grounded theory	0	0.0	1	2.9	0	0.0	5	9.6	4	4.0	10	3.5
Not clear	0	0.0	0	0.0	0	0.0	2	3.8	0	0.0	2	0.7
Features of rigor												
Included a control or comparison	1	1.5	0	0.0	2	5.7	1	1.9	2	2.0	6	2.1
Two different treatments	0	0.0	0	0.0	2	5.7	1	1.9	1	1.0	4	1.4
Typical practice	1	1.5	0	0.0	0	0.0	0	0.0	1	1.0	2	0.7
Randomized control trial	0	0.0	0	0.0	1	2.9	1	1.9	1	1.0	3	1.0
Established group equivalence	0	0.0	0	0.0	1	2.9	1	1.9	1	1.0	3	1.0
Time of measurement												
Pretest	1	1.5	0	0.0	2	5.7	1	1.9	2	2.0	6	2.1
Progress	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	1	0.3
Posttest	1	1.5	0	0.0	2	5.7	1	1.9	2	2.0	6	2.1
Maintenance	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Note. Publication year increment percentages are calculated within each increment (i.e., 67, 34, 33, 53, and 98 respectively). For all years the percentage is of the total articles (e.g., 283).

The 43 articles using qualitative methodologies were primarily phenomenological in design (14.1%, $n = 40$), while others employed case study (4.6%, $n = 13$) and grounded theory designs (3.5%, $n = 10$).¹

Only 2.1% ($n = 6$) of the articles utilized a control or comparison condition. Of these, four studies compared different conditions (1.4%), with the remaining two studies employing a control of typical practice (0.7%). Across the 154 data-based articles, three studies (1%) were classified as having used randomization or establishing group equivalence. Further, six studies (2.1%) combined pre- and post-test data to measure differences over time.

Yearly increments. Data-based articles ranged from just one per year (for five separate years) to 18 in 2012, during years when the journal was published (it is important to note that no issues of *JPED* were published in 1992 and 1999). Across the thirty-year lifespan of the journal, there has been an increasing trend in the publication of articles with original data and the relative percentage of data-based studies in each six-year increment (see Table 2). For example, during the first ten years of the journal, 19.6% of articles ($n = 3.2$ per year) were data-based as compared to 58.4% ($n = 9.0$ per year) in the most recent ten-year period. Additionally, the most recent period 2007-2012 ($n = 63$) had nearly double the number of data-based articles than the previous period (2001-2006, $n = 35$).

As evidence of the gradual shift in methodological trends over the life of the journal, in *JPED*'s first ten years, quantitative methods were used in 28.5% ($n = 26$) of all studies (data-based and non data-based), while in the most recent ten-year period 48.1% ($n = 66$, see Figure 1) of studies employed quantitative methodology. Since 1989, the number of simple descriptive studies has been on the rise, though, as other methodologies emerged in the literature, descriptive studies represented a smaller percentage of the total number of studies each year (26.4% to 21.7%). More recently, the number of comparative and correlational designs has grown from 8 to 19 and 1 to 9, respectively, when comparing data from 2001-2006 and 2007-2012.

The use of qualitative methods has also increased from 6.5% to 19.7% when comparing the first ten years and most recent ten-year period (see Figure 1). Phenomenological designs maintained a relatively consistent proportion of the published research (15-17%) from 1989-2001. However, the sum has more than doubled between the 2001-2006 increment ($n = 8$) and the 2007-2012 increment ($n = 17$). Case study and grounded theory designs have been used on a limited

basis but have increased in number during the last two time periods from 2001-2012, constituting 19 of the total 23 (82.6%) of these research designs used over the last thirty years.

Domain increments. The total number of articles ranged from a low of 38 in the Faculty or Non-Disability Support Staff-Level Domain to 101 in the Program or Institution-Level Domain (see Table 3). When examining the range, across 154 total articles containing original data, the Construct Development-Level Domain had 17 articles while the Student-Level Domain had 80. It is interesting to note that there are more data-based articles in the Student-Level Domain than the Program or Institution-Level Domain; however, the Program or Institution-Level Domain contained a greater total number of articles. Student-Level Domain (87%, $n = 80$) studies comprised the largest number of data-based studies, with Faculty or Non-Disability Support Staff-Level Domain being the next most common (55.3%, $n = 21$).

The descriptive-quantitative research design was most often employed with 38% of Student-Level Domain ($n = 35$), 31.6% of Faculty or Non-Disability Support Staff-Level Domain ($n = 12$), and 25.7% of Program or Institution-Level Domain ($n = 26$) studies using this method. The Construct Development-Level Domain had only six articles. Group studies were rarely used with three in Student-Level Domain (3.1%) and two each in Faculty or Non-Disability Support Staff-Level Domain (5.3%) and Construct Development-Level Domain (4.4%). Only three single subject studies were published in *JPED*'s history and all were coded as Student-Level Domain studies (3.1%). Comparative studies were found in both Student-Level Domain (28.2%, $n = 26$) and Program or Institution-Level Domain (3.96%, $n = 4$).

Qualitative designs make up the second largest number of data-based studies. Of these, phenomenological designs are most common with 27 in Student-Level Domain and four in Faculty or Non-Disability Support Staff-Level Domain. Case studies and grounded theory designs are much less frequent, with Student-Level Domain having the greatest number with five case studies and eight grounded theory designs. Half of the control or comparison studies ($n = 3$) were in Student-Level Domain, with all three delivering instruction in two conditions. Additionally, Student-Level Domain had two of the three randomized design studies (with Construct Development-Level Domain having the only other) and also the only time of measurement to include a progress or mid-point data collection assessment.

1 Note that, due to mixed method and the use of multiple qualitative methods in single study, the individual number of articles may appear greater than the total in each category.

Table 3

Percentage of Data-Based Articles by Method and Type by Domain

Design category/Type of design	Domains											
	Student-Level		Program/Institution-Level		Faculty/Non-Disabil. Support Staff-Level		Construct Develop.-Level		No Fit		All Domains	
	N	%	N	%	N	%	N	%	N	%	N	%
Study reported original data	80	86.9	34	33.6	21	55.3	17	37.8	2	28.6	154	54.2
Descriptive-quantitative designs	35	38	26	25.8	12	31.6	7	15.6	1	14.3	81	28.5
Group designs	3	3.1	0	0.0	2	5.3	2	4.4	0	0.0	7	2.4
Single subject designs	3	3.1	0	0.0	0	0.0	0	0.0	0	0.0	3	1.0
Mixed methods designs	11	11.8	3	2.9	3	7.9	3	6.7	0	0.0	20	7.0
Qualitative designs	28	30.1	5	4.9	4	10.5	5	11.1	1	14.3	43	15.1
Quantitative designs												
Simple descriptive design	25	26.9	23	22.8	11	28.9	4	8.9	1	14.3	64	22.5
Comparative design	26	28.0	4	3.9	4	10.5	2	4.4	0	0.0	36	12.7
Correlation design	6	6.5	4	3.9	1	2.6	4	8.9	0	0.0	15	5.2
Qualitative designs												
Phenomenological	27	29	4	3.9	5	13.2	3	6.7	1	14.3	40	14.1
Case studies	5	5.4	3	2.9	2	5.3	3	6.7	0	0.0	13	4.6
Grounded theory	8	8.3	1	1.0	1	2.6	0	0.0	0	0.0	10	3.5
Not clear	0	0.0	0	0.0	0	0	2	0.0	0	0.0	2	0.7
Features of Rigor												
Included a control or comparison	3	3.1	0	0.0	1	2.6	2	4.4	0	0.0	6	2.1
Two different treatments	3	3.1	0	0.0	0	0.0	1	2.2	0	0.0	4	1.4
Typical practice	0	0.0	0	0.0	1	2.6	1	2.2	0	0.0	2	0.7
Randomized control trial	2	2.1	0	0.0	0	0.0	1	2.2	0	0.0	3	1.0
Established group equivalence	2	2.1	0	0.0	0	0.0	1	2.2	0	0.0	3	1.0
Time of Measurement												
Pretest	3	3.1	0	0.0	1	2.6	2	4.4	0	0.0	6	2.1
Progress	0	0.0	0	0.0	0	0.0	1	2.2	0	0.0	1	0.3
Posttest	3	3.1	0	0.0	1	2.6	2	4.4	0	0.0	6	2.1
Maintenance	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Note. Domain year increment percentages are calculated within each increment (i.e., 92, 101, 38, 45, and 7 respectively). For all years the percentage is of the total articles (e.g., 283).

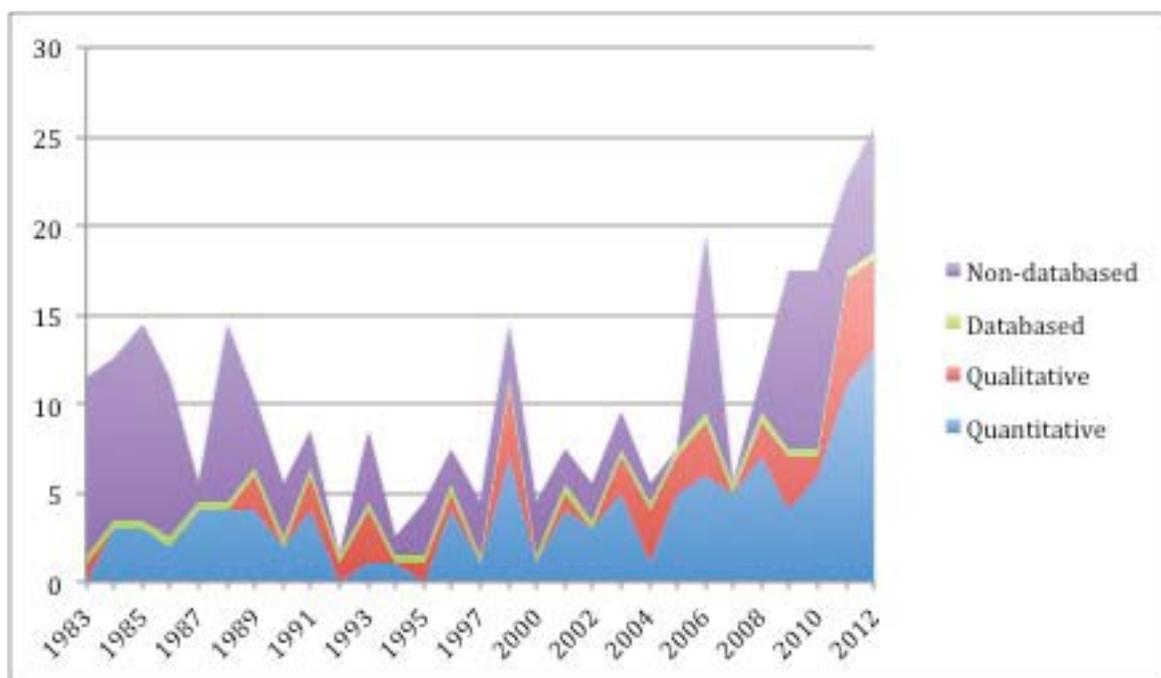


Figure 1. Number of articles by type across publication years.

Non-Data-Based Studies

Overall. Though specific analysis of non-data-based studies was beyond the scope of this review, a brief summary is provided given the large number of articles fitting this type of study. The 129 non-data-based articles had a range from one (in three separate years) to 11 (in 1985) during years when the journal was published. In contrast to the trend observed with data-based studies, non-data-based articles have decreased over the life of the journal with 45.4% ($n = 5.9$ per year) during the first 10 years to 36.1% ($n = 4.7$ per year) in the most recent 10-year period of the journal. Notably, the non-data-based studies exhibited a bi-modal distribution, with an average of 20.7% ($n = 2.4$ per year) during the journal's middle 10-year period, and a higher frequency on either end of the publication distribution across JPED's 30 years (see Figure 1).

Due to the statutory nature of educating students with disabilities, non-data-based articles were coded for whether they addressed legal or public policy issues. This category constituted 5% ($n = 14$) of the article total. Of note is that in the first ten-year period there were 10 such articles (71.4% of legal articles) with only two published from 2001-2012. The remaining 116 non-data-based articles (40.3%) address topics such as institutional compliance, descriptions of disability programs, conceptual models of service delivery and instruction, and programs for specific cohorts of students with disabilities (see Madaus et al., this issue for more).

Discussion

The purpose of this study was to examine methodological trends in research articles published in *JPED* over its lifespan. The thirtieth anniversary serves as an important benchmark in the journal's history and, arguably, the field of postsecondary education for students with disabilities. The examination of methodological trends allows readers to reflect upon – at least through the lens of *JPED* - what we know about students with disabilities in postsecondary environments as well as what we have yet to learn and translate into effective practice. *JPED* has served as the outlet for more than one-quarter (25.4%) of all of published research on disability and higher education, thus making it an ideal resource for examining methodological trends. This project coded all of the published articles in *JPED* from 1983 to 2012. Specifically, we examined the methodologies in all published research articles. In addition, results were categorized according to four identified domains: Student-Level, Program or Institution-Level, Faculty or Non-Disability Support Staff-Level, and Construct Development-Level studies.

Since 1983, over half of the *JPED* articles reported original data (54.4%), a trend that closely mirrors the 55.6% of data-based articles found in Carter and colleagues' (2013) review of the journal *Career Development and Transition for Exceptional Individuals*. Importantly, both the number and percentage of data-based articles in *JPED* increased over its thirty-year

history, indicating that the journal editorial leadership may be increasingly prioritizing the publication of data-based articles.

As shown in Figure 1, in the most recent years *JPED* has published more articles overall, with the majority being quantitative and data-based. There has not been the same trend with qualitative designs, which have only slightly increased in total number of articles each year while decreasing over the thirty-year period in terms of the relative percentage of articles over time. The number of qualitative articles remained relatively stagnant when compared to the quantitative studies. Notably, the number of issues published per year increased from two to four¹ since 1999, helping to explain the overall relative gain in number of articles.

A second important finding is the large majority of descriptive studies. Within the data-based article category, nearly 30% were quantitative descriptive designs, which was the most frequently used type of methodology across all *JPED* articles. Examples of this type of research include survey research, frequency counts and percentages of population characteristics, accommodation qualification and usage, and other program features. Descriptive studies are important in that they help the field understand the characteristics of a population, including how students with disabilities in higher education feel, what they do, and what types of services and supports they utilize.

The Student-Level Domain (i.e., students were the primary unit of analysis) had the most descriptive studies (38%), followed by Faculty or Non-Disability Support Staff-Level Domain, which addressed faculty and staff (32%), Program or Institution-Level Domain (26%), Construct Development-Level Domain (15%), and No Fit (14%). Thus, population characteristics of students are most commonly reported, with faculty and staff following. These findings help us understand both student and faculty/staff populations alike as they are currently characterized, or the “what is?” of the higher education and disability landscape (Carter, et al. 2013). Given that this is the most frequent type of methodology employed across the journal’s lifetime, we can say with a good degree of confidence we know the characteristics of student populations, and are somewhat confident about faculty and staff populations.

Third, the growing number of phenomenological and case study qualitative designs (n=35 since 2001) enriches the quantitative descriptive studies by providing depth and subtlety to findings. Specifically, results provide direction for intervention development to fit the diverse landscape of higher education, including how

students, programs, and policies impact one another in unintended ways. Unfortunately, not all studies adhered to recommendations for quality indicators of qualitative designs (e.g., Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005), leading to difficulty in identifying both the type of qualitative research and the credibility of the findings.

Fourth, and perhaps the most troublesome finding, concerns the very small percentage of studies that actually evaluate interventions for college students with disabilities. Empirical studies that include features of rigorous designs will help the field determine “what works?” for students with disabilities in higher education settings. The current study analyzed for critical features of rigor to begin the process of assessing quality. However, as the results indicate, only 6% of studies included features of rigor (e.g., pre/post test design, control or comparison group), thus precluding any discussion of overall quality. These findings are similar to the research conducted by Carter and colleagues (2013) on secondary transition and special education, which also showed an overall lack of rigor. However, it is important to emphasize that the lack of features of rigor is even more pronounced in the current study.

Fifth, across all data-based study types (qualitative and quantitative), our analysis determined that there were significant limitations to replication and generalization across *JPED* issues. For example, populations were often identified as postsecondary students with disabilities with no specific demographic or categorical identification. Moreover, when subjects were identified with a specific disability (e.g., autism, intellectual or learning disabilities), no additional information was provided (e.g., if the individual had a reading or math related disability). Further, it was frequently unclear what standing the subject had (e.g., Freshman, Senior, Graduate student, part-time, etc.), again limiting any conclusions that might be drawn regarding a target population (see Madaus, et al. this issue for more).

Sixth, the domain categorization demonstrates that the yearly and methodological trends can obscure how much research is done in specific areas. For example, of the 64 total simple descriptive designs, 75% were in the Student-Level Domain and Program or Institution-Level Domain, and of the 36 comparative study designs, 72% were in the Student-Level Domain. That is, while the majority of studies used the simple descriptive design, the categorization shows that descriptions are mostly about students and programs, and that the vast majority of comparisons are limited to populations of students, thus resulting in less research of this nature in the remaining domains. Similarly, the features of rigor are highly concentrated in Student-Level Domain where

¹ No Fit articles constituted the remaining two articles and were not counted as a separate domain.

50% of the total number of studies including a control or comparison and 66% of the total number of studies using randomization and equivalence were employed. Taken together, it is clear that while the second most researched category in *JPED*, Program or Institution-Level Domain, is focused on programs, without stronger research designs to substantiate claims, the journal may be limited in supporting improvement of program-level best practice.

Finally, the concentration of articles using such a limited number of research designs constrains the growth of the field of postsecondary education for students with disabilities relative to *JPED*. Depth of understanding across the field requires both a macroscopic (systems or programs) and a microscopic (individual students) unit of analysis, as well breadth of research methodology from qualitative to quantitative (Skrtic, 1995). Such comprehensive application of research methods moves the field beyond considering a problem or describing a population toward developing theories and interventions than can be implemented at scale to improve outcomes for students with disabilities. However, given the substantial percentage of articles on postsecondary education for students with disabilities published in this journal (25.4%), *JPED* is well positioned to contribute to serve as a major knowledge base in the field.

Limitations

While we examined 336 published articles over thirty years in the current study, there are several important limitations to consider in the interpretation of the findings. Perhaps the greatest limitation is the fact that we selected only articles from *JPED*, even though this journal has published approximately one-fourth of the research concerning college students with disabilities. Despite this high concentration of research in a single journal, there are other journals that have also published research on this topic. Following *JPED*, the next most common source is the *Journal of Learning Disabilities* with 5.3% of published studies on disability and higher education. Following that, the *Journal of College Student Development* (3.4%), *College Student Journal* (2.2%), *Disability and Society* (1.7%), the *Journal of Vocational Rehabilitation* (1.6%), *Learning Disabilities Research & Practice* (1.3%), and *Exceptional Children* (1.2%) have made notable contributions (Dukes et al., 2014). Although *JPED* remains the dominant source on research of disability and higher education, it is important to consider research published in other journals when making further generalizations. Therefore it is essential that the entirety of the extant research literature be reviewed and summarized in a manner similar to this more focused review.

A second limitation concerns the broad focus on methodology rather than a specific focus on quality indicators within the research studies printed in *JPED*. We did not study the type of design beyond broad classifications (e.g., quantitative, qualitative, mixed methods). This broad focus leads to a more general understanding of the literature but lacks further detail of study designs, such as multiple regression or ANOVA. Moreover, without assessing the quality of the current studies, we are unable to comment on the reliability and generalization of what data-based studies do conclude across *JPED*'s history.

Finally, as stated in previous research that also examined the extant literature of a particular journal or field (e.g., Carter et al., 2013), we have not chosen to speculate on the historical factors related to methodological trends. Federal funding initiatives, public policies, and a set of related societal factors very likely impact chosen methodologies over time. Moreover, the pragmatics of achieving the most robust randomized control trial designs may be impractical at best and at times impossible to achieve. However, developing a historical picture of methodological trends over time (as in Figure 1) provides at least an initial large-scale perspective of how a field such as postsecondary education for students with disabilities is progressing (or not). In this case, recent growth in numbers of studies is a strong indicator of vitality in the field.

Implications

The future of disability and higher education research must begin to consistently employ more features of rigorous designs. Particularly, such designs in high profile journals like *JPED* will allow us to address causality and begin to define "what works" for this population. Longitudinal studies are also warranted. Such designs would allow for a better understanding of life after college in order to determine the connection between higher education, employment outcomes, and quality of life. For example, we assume students with disabilities with college degrees are better off than their peers with disabilities who do not hold college degrees, and some findings have shown this to be true (e.g., Madaus, 2006).

JPED's editorial board has propelled the journal into the twenty-first century by keeping it in step with the changing culture of methodological design and growing focus on students with disabilities in postsecondary education. Changes over time in total number of issues, articles, and data-based articles are a sign of the health of the journal and the field. As the leader in publishing articles in the area of postsecondary education and disability, current and future editors might consider:

(a) continuing to utilize more rigorous designs, (b) helping policy makers to connect new grant funding to this target population, (c) encouraging special issues that bring together scholars concerning diversity on higher education so that disability can be at the table, and (d) continuing to prioritize and showcase research conducted in college environments.

Moving forward, it is critical to consider creative partnerships among scholars in higher education, special education, and personnel in postsecondary disability service offices. Such partnerships can help produce high quality research. Some of the barriers for higher education and disability scholars are a function of population access, particularly in regards to privacy laws (e.g., FERPA) and other institutional review board compliance regulations (e.g., avoiding discriminatory practice, equitable recruitment of human subjects, obtaining consent). At the same time, disability services personnel themselves face similar barriers to conducting high-quality research, particularly a lack of time and resources. It seems sensible for these professionals to partner and, thus, complement each other. Examples of this type of partnership exist in the research (Lombardi, Murray, & Dallas, 2013; Murray, Lombardi, Seeley, & Gerdes, 2014; Murray, Wren, Stevens, & Keys, 2009). Yet, these efforts remain the exception rather than the rule. Working to develop these partnerships should be a priority so that research can be embedded into the daily practices of disability service personnel.

It is the responsibility of the research community to provide an understanding of best practice to meet the needs of students currently pursuing postsecondary education, while also applying a comprehensive set of research questions and corresponding designs to identify and improve these practices and related outcomes for students with disabilities entering postsecondary education tomorrow. The methodological history of research in *JPED* on individuals with disabilities in postsecondary education highlights how the field has endeavored to establish itself, yet much work lies ahead.

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Authors' Note

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Digital Technology, Learning, and Postsecondary Students with Disabilities: Where We've Been and Where We're Going

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Abstract

This article briefly reviews the history of assistive technologies in American and Canadian postsecondary education starting in the 1990s, discusses the accessibility of e-learning and information and communication technologies (ICTs) currently popular in postsecondary education, and highlights emerging trends. Increasing use of universal design principles - in particular, ensuring the accessibility of digital technologies in the emerging stages, at the inception of development - continues to be recommended.

Keywords: Assistive technologies, postsecondary education, college, university, accessibility, e-learning, information and communication technologies, ICTs, emerging trends

In the Beginning

The 1990s was the first decade when digital technology took off in postsecondary education in Canada and the United States. It was primarily the “early adopters” who used technology such as course or learning management systems. PowerPoint was the popular in-class tool used by instructors. It was also during this time that instructors began turning to the Web and email as part of their e-learning approach. A positive byproduct of this was that students began submitting assignments in electronic format instead of in hard copy, making evaluating and grading easier for all faculty, including those with disabilities. This was especially true for faculty with disabilities requiring assistive technology to access print material because they were now dealing with assignments in digital copy that could be accessed using screen reading software,

for example. This was also the first decade that issues concerning the technological needs of postsecondary students with disabilities started being addressed in a systematic way. Early research at the Trace Research and Development Center, a pioneer in the field of technology and people with disabilities, was focused mainly on individuals with visual impairments (Vanderheiden, Boyd, Mendenhall, & Ford, 1991), while early educational research was focused mainly on the technology related needs of students with learning disabilities (Raskind & Higgins, 1995). For the most part, this left students with all other disabilities/ impairments to advocate for themselves.

Assistive technologies. There were several important developments in the early 1990s. One was Sheryl Burgstahler’s seminal doctoral thesis (1992), which dealt with a study of assistive technology and

technology-related services for postsecondary students, and her founding of DO-IT (Disabilities, Opportunities, Internetworking, and Technology). This is an enormously influential organization hosted by the University of Washington that has, since the mid-1990s, produced free publications and videos intended to increase the success of students with disabilities. Another key development was the growth of EASI (Equal Access to Software and Information) under the chairmanship of Norm Coombs. EASI, an early advocate of the use of accessible technology in higher education, provides free and fee-based online courses on topics related to information and communication technologies (ICTs) and accessibility directed at faculty and postsecondary staff. Yet another development was the expanded impact of CSUN (California State University, Northridge -International Technology and Persons with Disabilities Conference), whose dedicated stream on postsecondary education and technology found a worldwide audience. Finally, it was also during this period that the Adaptech Research Network was founded. Its primary focus since its inception in 1996 has been on conducting empirical research into the use and accessibility of technology by postsecondary students with disabilities.

Toward the end of the 1990s there was much concern and discussion about the accessibility of mainstream e-learning technologies and the availability of assistive technologies in postsecondary education. The annual Accessing Higher Ground Conference, for example, was started in 1997, with a focus on these issues. It was also in the late 1990s that the High Tech Center Training Unit of the California Community Colleges (1999) produced an influential and cutting-edge document on accessibility of e-learning technologies in distance education. This document, almost immediately after its publication, became the premier resource on how to make online postsecondary education accessible to all students.

Empirical research. Because there was virtually no empirical research in the 1990s on what technologies postsecondary students with different disabilities/ impairments used, the Adaptech Research Network conducted its first study of how almost 800 Canadian college and university students with various disabilities accessed specialized (e.g., software that enlarges what is on the screen) and general-use technology (Fichten, et al., 1999, 2000). What this research found was that virtually all students with disabilities used some form of technology to facilitate their learning and that a key obstacle to doing so was high cost and poor compatibility among different types of technology products.

During this time, campus offices providing disability-related accommodations to students were typically staffed by counselors, social workers, and nurses who were not very knowledgeable about either specialized (e.g., Braille printers, voice recognition software) or general-use technology (Fichten, Asuncion, Barile, Fossey, & Robillard, 2001). While there were many similarities between views of students and campus disability service providers, the discrepancy in perspectives resulted in different technology-related accessibility related priorities for the two groups.

Blurring between assistive and general use ICTs.¹

In a study that is now fifteen years old, close to 800 postsecondary students with disabilities were asked what computer and/or adaptive computer technologies they considered could be useful in getting their academic work done (Fichten et al., 2000). In rank order, the top 10 for students with all types of disabilities combined was: spelling/grammar checker, scanner, portable note-taking device, dictation software, alternate format materials (e.g., books, hand-outs), specialized software for learning disabilities (e.g., word prediction), voice control software (voice commands like “file,” “open”), a large screen monitor, text-to-speech software (reads what is on the screen), and mouse adaptations.

The results highlighted that what are generally considered mainstream ICTs were, in fact, used as assistive technologies by students with certain disabilities. For example, the ubiquitous spell checker was used by students with learning disabilities as assistive technology to help compensate for the disability. Dictation (speech-to-text/voice recognition) software, originally intended for professionals and executives, was used as assistive technology by students with a variety of hand/arm impairments and some types of learning disabilities. Text-to-speech screen reading technologies, originally used by people with visual impairments, have crossed over into the mainstream. The same is true for scanners and optical character recognition software, which are used as adaptive technologies by students with visual and other print impairments. Nevertheless, some technologies have remained disability specific: Braille printers and head and foot mice are examples.

Thus, there appear to be three categories of technologies used by students with disabilities: general use ICTs (e.g., word processing), assistive computer technologies (e.g., Braille printer), and those that are “adaptable” (e.g., dictation and screen reading software).

1 This section is heavily adapted from Fichten et al. (2000)

Turn of the Century to Date

Specialized assistive technology. In the 2000s, the medical model began losing ground. In this framework the emphasis was on managing the student's disability and on providing accommodations, including assistive technologies, for each student based on diagnosis and needs (National Educational Association of Disabled Students, 2012). The social model of disability, where the focus is on making changes to the environment to be more accommodating to all people (McGuire, 2011), has been gaining strength in Canadian and American postsecondary education (Thornton, & Downs, 2010). This includes the migration of universal design concepts, which include responding to the diversity of users from the outset, from the realm of products and buildings (Connell, et al., 1995; Vanderheiden, 1993) to e-learning and postsecondary education (McGuire, Scott, & Shaw, 2003).

Another key development was enforcement of the "Section 508" legislation which, while not specifically relevant to postsecondary education per se, became a point of reference, requiring U.S. federal government agencies to acquire or develop only accessible ICTs (<http://www.section508.gov/>). It made no sense for mainstream software and hardware developers to produce two versions – an accessible version for the government and an inaccessible version for everyone else. So all benefitted.

A key finding of a recent Adaptech Research Network study is that mainstream information technology (IT) specialists on campus knew very little about the technological needs of students with disabilities, underscoring the need for both access technologists and some level of training on accessibility to front-line IT staff (Fichten, et al., 2009). Subsequent research also showed that while many students' access needs are being reasonably well met, there is one key exception – training on how to use needed specialized/assistive technologies (e.g., screen reading software) (Fichten, et al., 2012). Typically, training is one of the responsibilities taken on or given to those whose role involves supporting access technology on college and university campuses. It was also during the 2000s that ATHEN (Access Technology Higher Education Network [www.athenpro.org]), along with the IT Accessibility Constituent Group of EDUCAUSE (2014) came into being, further raising the profile of those who support technology accessibility in higher education.

In all investigations carried out by the Adaptech Research Network, students noted the high cost of specialized assistive technologies (e.g., screen reading software, specialized multipurpose software for students with learning disabilities). Students also

shared low-cost alternatives. This would result in the compilation, starting in 1999, of a listing of free and/or inexpensive hardware and software alternatives that might be useful for students with diverse disabilities (see www.adaptech.org/downloads). This listing continues to grow, including the addition of Windows and Mac products, as well as Apple and Android apps (Adaptech Research Network, 2014). The listing is in no way meant to replace high-end assistive technologies. Rather, the software compiled there is meant to fill the gaps caused by cost and complexity of what is currently available for students with disabilities. Today, and for the last number of years, Apple's smartphones and tablets "out-of-the-box" come bundled with built-in accessibility support for people with different disabilities. Given the role of mobile technologies in current and future e-learning, the accessibility, usability, and affordability of mobile devices and apps is an exciting development.

E-learning. Most instructors use some form of e-learning in their courses (Schmid, et al., 2014). This includes PowerPoint and Prezi, podcasts, videos, clickers (hand-held hardware or mobile device to respond to multiple choice questions in class, which are then tallied in real time), simulations, blogs, digital textbooks, and Web conferencing (Tarawneh, Tarawneh, & Alzboun, 2011). However, unless the course is held in a computer lab, many students with disabilities cannot use needed specialized technologies (e.g., screen reading software, an adapted mouse) to access these. Students can experience difficulties even in classrooms equipped with a computer for each student (or, more recently, a tablet) because the specialized hardware/software they need is located on computers in specialized adaptive technology labs, rather than in the locations where students need these. Although site licenses are usually available, it is only when specialized technologies began being available on USB flash drives that some students were able to take their technologies to class. Wi-Fi, portable, and mobile computing have also been helpful, but only if instructors upload their teaching materials in accessible formats and allow students to access these on their own devices.

Faculty often make online materials available on a course web site or a course/learning management system that allows students to interact with learning materials outside of the classroom (Lombardi, Murray, & Gerdes, 2011). Although online content can be inaccessible (e.g., no captioning of videos, PDF image files), it is material used "on-the-fly" inside the classroom that can pose the most serious access challenges. For example, if the professor uses a video clip in class, this may not be available to the student who requires

video description or subtitles. Or if he or she uses a simulation or digital polling in class, students may not be able to download the results onto their devices to make it accessible. It is important to remember that just because it is digital does not mean that it is usable or accessible to all (Berkowitz, 2008).

College libraries with paper journals are quickly becoming extinct as libraries increasingly move toward digital journals and e-books that can be read online or downloaded and borrowed for the usual number of days. These are often in locked Adobe PDF (DRM) or epub formats. The accessibility of these e-books varies. This trend notwithstanding, unless or until paper-based publications disappear completely from library shelves, colleges and universities must continue seeking ways to address the need for timely access to print material. This was recently demonstrated by the 2013 settlement agreement involving UC Berkeley's library (Schwartz, 2013), which underscored that this need is still very much a reality. Fortunately, technology exists to convert most print material into electronic formats.

"Active learning" has also become popular (Lasry, Dugdale, & Charles, 2014). This can include interactive white boards (e.g., SMART board) and study pods where students teach each other. A challenge when it comes to interactive white boards is how to make both the content and the ability to use them accessible to students with visual or hearing impairments and to students with attention deficit issues who have difficulty in noisy "team" environments and can get lost in the multiplicity of activities. Nevertheless, efforts are ongoing to make active learning accessible (e.g., Illinois State University Media Relations, 2012; Summers & Brauner, 2012).

While some of the larger companies that support and promote e-learning in higher education, such as Desire2Learn and Blackboard, as well as open source organizations, such as Moodle, have been putting efforts toward making their learning platforms accessible, much work still remains. WebAIM's Cyndi Rowland (2012) highlights legal action taken against a number of U.S. colleges and universities between 2009 and 2012 concerning the inaccessibility of their learning technology. Likely as a reaction to such complaints, the United States Departments of Education and Justice jointly issued a "Dear Colleague Letter" in 2010 to presidents of colleges and universities expressing concern over the use of emerging technologies, specifically electronic book readers that are inaccessible to students who are blind or have low vision (U.S. Department of Justice and U.S. Department of Education, 2010). This was followed by a supplement that provided guidance on the use of emerging technology and institutions' obli-

gations to students with a broad range of disabilities (U.S. Department of Education 2011).

In 2014, universal design is a mainstream concept championed by offices that provide disability-related supports on campus (Burgstahler, 2008; CAST, 2011). Universal design concepts are starting to emerge – although slowly – out of the disability arena (Davies, Schelly, & Spooner, 2013). For example, text-to-speech software has excellent potential for proofreading papers (Greenbaum, 2014). Captioned videos are helpful to all students to help with spelling of technical terms or unfamiliar names or words. The use of universal design in e-learning, however, is usually more by happenstance than intention (e.g., PowerPoint and course notes on web sites are available to all, but can be considered an access accommodation for students with certain disabilities/impairments). Social media are also increasingly used in academe (Selwyn, 2012). How accessible these are to students with different disabilities varies (Asuncion, et al., 2012). For example, YouTube captioning is still not as widely used as it can be and Google Drive documents can pose access challenges for students who are blind who are using older versions of screen readers.

The largest proportion of postsecondary students own a smartphone or a tablet (Johnson, et al., 2013). For example, two years ago 74% of students at one university owned a smartphone and 30% a tablet (Hanley, 2013). These have different levels of built-in features meant to provide access to people with disabilities. There is also the growing number of free or inexpensive software solutions available to support persons with disabilities (Adaptech Research Network, 2014). These developments, along with the trend toward universal design, hold promise for meeting the future technology and e-learning accessibility needs of students with diverse disabilities.

Future Trends In E-Learning and Accessibility

Many of the current approaches to e-learning will continue into the next decade. This includes the use of tablets and other mobile technologies, digital textbooks, and active learning applications as well as the use of videos, clickers, etc. There are also many relatively new exciting technologies and approaches on the horizon that need consideration.

Mobile learning (M-learning) and cloud computing.

The traditional model of using software installed on one computer is rapidly changing with the advent of cloud computing and "apps." These allow the use of software "in the cloud" (essentially a metaphor for the Internet) anywhere, anytime, so long as the student has Internet access. A good example is Google Drive

(<http://drive.google.com>), which allows use of a Microsoft Office-like suite in a totally online environment. No need to install software. Mobile devices, including laptops, will benefit from this new trend.

Due to the Web's high penetration in Canada and the United States, mobile devices are a natural platform for Web-based e-learning. M-learning devices include laptops, notebooks, smartphones and tablets. M-learning allows sharing learning content in social networks, such as Facebook and Twitter. The ability to share content in many different platforms and social networks make portable devices a very powerful e-learning platform. The concern for students with disabilities with M-learning relates to the accessibility of the course/learning management systems used to deliver the learning materials as well as the accessibility of the software, of social media networks, and the learning materials themselves. Nevertheless, M-learning allows students to replace printed materials with digital content delivered on students' own portable devices that are, presumably, accessible to them.

MOOCs (Massive Open Online Courses). MOOCs are online courses aimed to reach a great number (usually thousands) of students via the web. Most are free courses provided by either individual universities or a consortium of universities (e.g. eDX, a MOOC consortium created by MIT and Harvard, <http://www.edx.org>). There are also private MOOC providers, such as Coursera (<http://www.coursera.com>) and Udacity (<http://www.udacity.com>). MOOCs are generally non-credit, although some offer a certificate upon successful completion of the course. An issue with MOOCs is low completion rate, reportedly as low as 5% to 7% (Lewis, 2014; Parr, 2013).

At the time this article is being written, conversation around accessibility of MOOCs is nascent. According to Butler (2012), "The responsibility to ensure MOOC content is accessible will likely be divided between the platform providers and the partner institutions." Not an auspicious state of affairs.

Gamification of learning materials. "Gamification is an informal umbrella term for the use of video game elements in non-gaming systems to improve user experience... and user engagement" (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011). A good example is Duolingo (<http://www.duolingo.com>), an online collaboration website for language learning. Real examples from the Web are used. The best translations for each sentence are shared and other students can give their feedback. Several colleges are exploring using gamification in education (e.g., Schaffhauser, 2014).

How accessible will gamified courses be? A good question. Given how new the approach is, universal

design, whereby designers incorporate accessibility from the beginning, has terrific potential.

Wearable technologies. Wearable devices are clothing and accessories that incorporate information and communication technologies. The purpose is to create constant, portable, and mainly hands-free digital access (Wearable Devices, 2014). An example of wearable technologies that could benefit people with disabilities includes smartwatches. Another example is Google Glass (<http://www.google.com/glass/start>). This eyeglass-like wearable computer displays information in a smartphone-like hands-free format and allows wearers to communicate with the Internet using voice commands (Newman, 2012). While Google Glass already has several features that will benefit people with disabilities, these are still limited. Its hands-free form and voice-activated command features establish a solid step in the right direction for an accessible device. Google Glass already incorporates elements of eye control (wink to take photos) and it detects head movements. Google Glass could, in the future, be useful for people with limited or no motor control because of apps using voice commands (Ehrenkranz, 2014) as well as those with low vision due to the use of navigation and other apps (Consumer Reports Staff Writers, 2014). In the future, it could possibly deliver captioning to Deaf users and facial and object recognition to users with visual impairments.

Digital textbooks. Digital textbooks (e-textbooks or e-texts) often serve as the main text for a class, be it traditional or online. The biggest advantage of these is their convenience, as many can be used with multiple portable devices such as laptops, notebooks, tablets, e-readers (dedicated devices for text reading) and smartphones. Other advantages include cost. In addition, if these are not simply electronic versions of the paper product, digital textbooks can provide more up-to-date material than paper books, which can take a year or two to get to print.

How digital textbooks are prepared and presented to students determines their accessibility and usability. Epub books are mostly accessible (Kirkpatrick, 2010). However, academic book publishers tend to use their own proprietary formats. Although most of these have at least limited accessibility to students with print and motor impairments, there are important issues related to usability. The biggest concerns include eye strain, cost, and programmed expiration (the digital book expires and becomes unavailable after a pre-defined period of time) (Mann, 2013). A recent survey shows that students without disabilities still prefer paper to digital textbooks (J. Andrews, personal communication, 2014), although once students have experience

with digital textbooks, research shows that they are more likely to use these in the future (Dennis, 2011; Weisberg, 2011).

YouTube as a learning platform. YouTube is a free video-sharing website. Here, users can upload and view mainly brief videos. In recent years it has become a useful e-learning tool, as instructors can create playlists with selected videos on a specific topic and share it with their students. Indeed, according to Google, “Training, certificate, and program-related videos took the lead with 49% growth, and vocational and trade school videos grew by 35%” (Campus Technology, 2014). In addition, students can search YouTube for concepts they did not understand in class. Creatively, YouTube has spawned new genres of video instruction, including Khan Academy, RSA animations, and TED Talks (Clark, 2013).

YouTube videos can be especially helpful to visual learners, including students with learning disabilities. That said, there are issues related to hearing and visual impairments. Students with visual impairments are likely to miss visual elements of the video in the absence of described audio, while those with hearing impairments miss the verbal content. YouTube has a captioning tool, making it relatively easy to add subtitles to the uploaded videos. However, automatic captioning could pose difficulties, as pointed out earlier, and additional time may be required to clean up the text for accuracy. There are also third-party tools to create subtitles (e.g., Subtitle Workshops, <http://subworkshop.sourceforge.net>). For now, most YouTube videos are neither video described nor captioned. Maybe in the next decade...

Note taking. Assistive technology is available to facilitate note taking for students with disabilities. As important as it is to teach students keyboarding skills to use computers, it is equally important to teach the skills needed to take notes on laptops, tablets and smartphones. For example, a variety of digital pens (TopTenReviews, 2014) can be used to handwrite notes to upload to a computer. Some can also synchronize this with audio from a lecture. Tapping the audio-enabled digital pen anywhere on text written with the pen plays back the audio recorded while the text was being written. Some of these pens can be used with mobile devices; some with paper only (Livescribe, n.d.). An iPad app that costs under \$3.00 (Notability) will simply record all activity – be it writing or typing – on the tablet and synchronize it with speech that it also records (Ginger Labs, 2014).

Audio notes can also be taken using the built-in functionality of smartphones and tablets, without the need for a separate recorder. While offices for students

with disabilities often require students to sign a form to assure the confidentiality of the lecture, many students without disabilities simply use their portable devices to record both audio and video.

Another form of note taking – and paper writing as well – involves dictation software, both on a regular computer as well as on a mobile device. Using voice recognition software can render these notes into e-text that can be inserted into email or a Word document, for example. Although accuracy is not perfect, it has much improved over the past 20 years and it is expected that accuracy will continue improving, making this a useful productivity tool.

On a related note, the idea that the professor can use voice recognition during a lecture where video, audio, and text are simultaneously recorded and uploaded to a large screen as the professor is speaking has been around for 20 years (Liberated Learning Consortium [<http://liberatedlearning.com>]). A variety of problems have made this universal design endeavor not yet viable, although it has possibilities for being inclusive of many different types of students, including those with hearing impairments. In such efforts, consideration should be given to developing translation software from English to American Sign Language, so that the professor’s lecture is available, in real time, to students who use sign language. Of course, problems encountered with voice recognition and captioned lectures would likely be exacerbated in this context.

Many universities and colleges already provide lecture recording, especially in large classes, including video as well as audio capture, which is stored on the course web site. This, too, illustrates universal design principles and allows students to review material covered in class at their own pace. We suggest that, in the future, such recording be made widely available and that these be enriched with captioning and with automatic generation of sign language animations. We also believe that technology that allows students to view – and save – material presented by the professor in class on a multimedia projector or on an interactive whiteboard, on their own computer or mobile device via Bluetooth, Wi-Fi, or other similar technology, should be made widely available.

Open educational resources are freely available. Openly licensed software documents and media are useful for teaching and learning. These provide an alternate educational paradigm (Kauppinen, 2013). For example, if students are interested in learning about aeronautical engineering from a professor at MIT, they can check out lecture notes and videos from MIT courses (<http://ocw.mit.edu/courses>). On the website creation side, many web content creation tools (e.g.,

WordPress, Drupal, Joomla) can be used to produce websites for free. The same is true of content and learning management systems, such as Moodle. Open source software makes it simpler to make modifications to be compliant to accessibility standards, as the source code is open and can be modified by any programmer, so long as he or she is aware of relevant accessibility guidelines. Communities of practice comprised of volunteers with expertise are available to help with accessibility issues. But there are no guarantees!

Future Trends in Technology Useful to Students with Disabilities

As we mentioned earlier, built-in features in smartphones and tablets, along with a range of free or inexpensive software solutions, are important and are expected to continue to evolve. YouTube and Vimeo continue to mature their captioning solutions. 3D printing (three dimensional printing) is on the horizon in higher education (Johnson, et al., 2013) and may have potential for producing tactile objects especially useful for students with visual impairments. Finally, work to overhaul the Americans with Disabilities Act ([ADA]; Center for an Accessible Society, n.d.) to more explicitly include the Internet will have a significant impact on technology, accessibility and postsecondary students with disabilities.

A trend worth watching is personalizing accessibility via the cloud. Here, the idea is that students with disabilities would gain the ability to use technology, such as a library terminal, that is able to provide accessible features personalized to their individualized needs without having to worry about the availability of specific assistive technologies. Instead, individuals need only carry a card or to log in, and whatever adaptation they might need would become available. The Global Public Inclusive Infrastructure is leading this effort (RtF Consortium, 2011), which holds potential for making technology in postsecondary education more accessible.

Conclusion

We expect that technology in higher education will evolve and increase in its use faster than in years past. What can be done?

1. Include the voice of students with disabilities and campus disability service providers at any table where discussion of new and emerging technology adoption is discussed on campus. These conversations are actively taking place on many campuses. Inviting oneself to such

meetings may be necessary. This may be the only opportunity to ask the sometimes tough questions as to how students with disabilities will benefit from - and have access to - what the institution deems to be “the latest and greatest” piece of new technology and to get firm commitments that accessibility will be a requirement.

2. Train faculty how to use technology in an accessible way in their teaching. Since it is impossible to know if a student with a disability might take any particular course, such training should anticipate and assume this reality. An example related to online learning, which provides quality control checks, is described by Bastedo, Sugar, Swenson, and Vargas (2013).
3. Educate on universal design principles and provide ongoing support with a view to adopting these. Workshops on pedagogical practices should include offerings on universal design – and not only for providing accessibility for students with disabilities. Given the diversity of Canadian and American postsecondary student populations, this will benefit all students, including those with disabilities.
4. Require vendors to demonstrate (i.e., “show me how”) that their products are accessible - or not - to users with disabilities. A “Voluntary Product Accessibility Template” or other written documentation alone should not be deemed sufficient evidence. In addition, if the institution decides to go forward with the purchase of an inaccessible product, it should require, contractually, that vendors provide a reasonable timeframe (agreed on by both parties) for when an accessible version of a product will be available. Meanwhile, colleges and universities should press vendors to provide accessible alternatives to address accessibility gaps in their products while these are being addressed. Organizations such as The Association on Higher Education And Disability (AHEAD) could take the lead by creating a living resource of vendors’ learning technology products that institutions could comment upon based on their experiences. It goes without saying that the same level of rigor and expectation of accessibility should be applied to anything internally developed for student use.
5. Affirm the college or university’s commitment to digital inclusion by assuring language that explicitly describes this commitment and how

it will be executed is included in procurement and other campus policies that govern the use of technology in teaching and learning. Without such language in written policy, those who are advocating for equal access to technology on campus have nothing to reference and leverage, especially in situations where there might be internal or external push back.

6. Deliver training on the use of frequently used assistive technology to help desk and other IT staff who interact with the student body and provide them with awareness training on accessibility. By doing this, day-to-day technical trouble-shooting can shift from the access technologists and offices providing disability-related services to the mainstream help desk. This would, hopefully, free up time that could be better used to train students.

Trends such as mobile learning, open educational resources, MOOCs, gamification, and wearable technology offer exciting possibilities. However, lacking are substantive conversations on making learning experiences involving such technologies accessible and inclusive of students with disabilities. We encourage those who champion the use of the latest ICTs in colleges and universities, both on campus and in the education industry, as well as their higher education counterparts who are experts in accessibility, to begin engaging in meaningful dialogue. At the time this article is being written, an example of where dialogue could begin involves the proposed Technology, Equality and Accessibility in College and Higher Education (TEACH) Act in the US (Congress.Gov, 2013), where there clearly exists a difference of opinion among the stakeholders (Hartle & Cummings, 2014; Shachmut, 2014). Failure to begin such conversations and taking action today may well result in introducing a host of new digital barriers to postsecondary education for students with disabilities.

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Fostering Self-Determination in Higher Education: Identifying Evidence-Based Practices

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Abstract

Research on the transition of students with disabilities and their post-school outcomes continues to move the field of special education in the direction of evidence-based practices. As special education professionals work to better recognize the impact of instructional and environmental characteristics to prepare youth for their transition, so must postsecondary education professionals. There is a need for a unified research agenda in the field of higher education and disability to conduct rigorous studies on evidence-based practices in the college environment that support self-determination and to identify evidence-based predictors that correlate with improved outcomes in retention, graduation, and further education or employment.

Keywords: Self-determination, students with disabilities, postsecondary education

Self-determination became a significant part of transition planning services in federal legislation when it was first included in the Rehabilitation Acts of 1992 and 1998 and the Individuals with Disabilities Education Acts (IDEA) of 1990 and 1997 (Cobb, Lehmann, Newman-Gonchar, & Atwell, 2009; Wood, Karvonen, Test, Browder, & Algozzine, 2004). Defining self-determination within the context of preparing youth with disabilities for their futures has been a focus of research and demonstration activities for several years. Test and colleagues (2009) conducted rigorous correlational research, identifying 17 evidence-based predictors of improved post-school outcomes in three categories: employment, education, and independent living. They found that higher levels of self-advocacy/self-determination were significantly associated with an increased likelihood of postsecondary education (Test, Fowler, & Kohler, 2013). This finding is critical in light of the well-documented relationship between postsecondary education and improved employment outcomes for individuals with disabilities (Stodden & Dowick, 2001).

Research on the transition of students with disabilities and their post-school outcomes continues to move the field of special education in the direction of evidence-based practices. Evidence-based practices are defined as those that are grounded on “rigorous research designs, have a demonstrated record of success for improving student outcomes, and have undergone a systematic review process using quality indicators to evaluate the level of evidence” (Mazzotti, Rowe, Cameto, Test, & Morningstar, 2013, p. 141). As we learn more about the impact of self-determination on secondary post-school outcomes in education and employment, it is equally critical to research evidence-based practices in postsecondary education settings, since the relationship between the self-determination skills of students in college and their success in these settings continues to remain, for the most part, unexamined (Finn, Getzel, & McManus, 2008; Jameson, 2007). There is a great need to identify, refine, and implement evidence-based practices within the postsecondary environment that can foster the continued development of self-determination skills.

Components of Self-Determination

Self-determination is defined both on the individual skill level and at the level of organizational practices (Morningstar et al., 2010; Wehmeyer, 2004). A conceptual framework of self-determination is described by Field and Hoffman (1994) as “the ability to define and achieve goals based on a foundation of knowing and valuing oneself” (p. 136). Wehmeyer, Agran, and Hughes (1998) present 12 component skills that are essential to the emergence of self-determined behavior in an individual. Some of the skills identified include choice-making, problem-solving, self-advocacy, internal locus of control, self-awareness, and self-knowledge. College students with disabilities identify these behaviors as critical to success in postsecondary education (Getzel & Thoma, 2008; Thoma & Getzel, 2005).

Research conducted in the field of psychology on the theory of self-determination supports the idea that attributes of self-determination are more than just biological, but are also a function of “a wide range of reactions to social environments” (Ryan & Deci, 2000, p. 68). It is the combination of the individual and specific environments that encompass the development and expression of self-determination. For example, in studies examining individuals’ inherent motivation, the overall feel of the specific environment, such as the home or the classroom, can inhibit or enhance a person’s sense of choice and initiative (Deci & Ryan, 2008).

In a study that examines both personal and environmental characteristics, Shogren, Wehmeyer, Palmer, and Paek (2013) conclude that further research is needed to understand the school environments that are supportive of self-determination. The researchers also recommend that studies should be conducted outside of a school setting to obtain a more complete understanding of the factors that can impact self-determination.

As special education professionals work to better recognize the impact of instructional and environmental characteristics to prepare youth for their transition, so must postsecondary education professionals. There is a need for a unified research agenda in the field of higher education and disability to conduct rigorous studies on evidence-based practices in the college environment that support self-determination and to expand this research to identify evidence-based predictors that correlate with improved outcomes of retention, graduation, and further education or employment.

Research on Self-Determination of Transition Age Youth

Clearly, the field of special education must address the preparation needs of students with disabilities in their transition to postsecondary education through mandates in IDEA 2004. As part of the IDEA, states are required to report the post-school outcomes of students with disabilities who are competitively employed, enrolled in higher education, enrolled in some other postsecondary education/training program, or engaged in some other employment arrangement one year out of high school. These data are used on the national, state, and local levels to determine what programs, activities, or supports are needed to increase the participation rates of students in higher education, postsecondary training or employment. States are also engaged in developing college and career-ready standards and assessments to ensure that *all* students are able to exit high school prepared to successfully obtain further education or employment in today’s global economy. Morningstar and colleagues (2010) report that national organizations recognize the need for increased participation in postsecondary education through better transition services, including instruction and self-determination skill development.

Yet, obstacles remain in the transition to college for students with disabilities. While more students with disabilities are transitioning to college, they are still less likely (46% vs. 63%) to ever have been enrolled in postsecondary education than youth in the general population (Newman, Wagner, Cameto, Knokey, & Shaver, 2010). This is not surprising when looking at students’ expectations for future postsecondary school completion. When asked about graduating from a 4-year college, 25% of youth with disabilities indicated they definitely would, compared to 89% of youth in the general population (Newman et al., 2010).

What is equally concerning is the fact that once they are enrolled in college, students with disabilities are not seeking needed services and supports through the process of self-disclosure to receive accommodations. Half of the students exiting special education enter postsecondary education indicating that they do not believe they have a disability. An additional 14% of students consider themselves to have a disability, but choose not to disclose. Thus, just 35% of students with disabilities choose to disclose their disability in college (Wagner, Newman, Cameto, Garza, & Levine, 2005; Newman & Madaus, 2014). Newman and colleagues (2010) also report that only 41% of students with disabilities have completed some type of postsecondary credential, compared to 51% of youth in the

general population. More research and demonstration is needed to study personal characteristics and environmental factors that impact students with disabilities while in high school and during their transition to and participation in college.

Self-Determination and Higher Education

The literature on the need for self-determination skills to remain and persist in higher education continues to grow as we look at new populations entering college and the components of a successful transition to this setting (Briel & Getzel, 2014; Grigal & Hart, 2010; Morningstar et al., 2010). Through the exploration of differences between secondary education and college, we know that the adjustment to a college environment presents challenges for all students; however, the responsibility of managing accommodations along with coursework presents an additional set of challenges that are unique to students with disabilities. The issues facing students with disabilities are well documented in the literature (Banks, 2014; Briel & Getzel, 2014; Getzel, 2008; Hitchings et al., 2001; Thoma & Getzel, 2005). Students with disabilities report barriers resulting from a lack of acceptance, difficulties accessing the necessary services and supports, and concerns in the area of self-advocacy (Lehmann, Davies & Laurin, 2000). If we are to better understand how to assist students with disabilities to transition into, remain in, and graduate from postsecondary education programs, it is incumbent on both secondary and postsecondary education to jointly engage in research, especially evidence-based practices that can assist with the transition from one environment (secondary education) to another (postsecondary education).

Fostering Self-Determination in Higher Education

In an atmosphere of “high expectations, reduction of resources and questions about higher education’s commitment to educational value” (McCormick, Kinzie, & Korkmaz, 2011, p. 25), colleges and universities are focusing on student engagement. Institutes of higher education are a growing part of the First Year Experience Movement (McCormick et al., 2011). The focus of this movement is to address concerns for student retention focusing on active and shared learning and student-faculty interactions in the first year of postsecondary education. Examples of support provided to first year students include an emphasis on methods to help students in their academic planning and completion of program requirements, learning communities and seminars, and peer-to-peer instructional support (McCormick et al., 2011). Within this environment of increasing student engagement, rigorous research on

evidence-based practices that continue to foster self-determination skills would contribute to the knowledge of factors that could have a positive impact on retention and graduation rates. Ultimately, the research on effective practices in self-determination could generalize to all college students, as seen in the examination of universal design strategies in the instruction of diverse learners (Roberts, Park, Brown, & Cook, 2011). As Wehmeyer and Abery (2013) contend,

There remains a need to develop better measures of global self-determination that can be used with children, youth and adults with and without disability so as to be able to better integrate practice in the area in typical school, family and community activities (p. 406).

There are a number of university-based programs and practices that encourage the self-determination of students with disabilities, which could be a starting point for discussion on research to identify evidence-based practices. Program models or practices need to be examined to determine traits and characteristics of students with disabilities, including self-determination, self-advocacy, and motivation (O’Neill, Markward, & French, 2012). Below are a few examples of organizational practices that could foster self-determined behaviors within a college environment, based on research and evaluation articles in the literature.

Use of Peer or Faculty Mentoring Programs

Providing peer-to-peer mentoring or faculty mentoring programs is not new in the college setting. Universities and colleges are establishing these types of programs to help students who are struggling with their coursework in order to increase their likelihood of staying in school (Getzel, 2008). As Brown, Takahashi, and Roberts (2010) conclude after a review of the literature on mentoring in postsecondary education settings, evidence-based research is sparse. While generally viewed as a beneficial practice in the field, research is needed to determine the efficacy of this model (Brown et al., 2010).

Use of Coaching/Education Coaches

Various models of coaching are being used in higher education to benefit students with disabilities (Finn, Getzel, & McManus, 2008; Parker, Hoffman, Sawilowsky, & Rolands, 2011). For example, in two studies conducted by Parker et al. (2011) and Finn et al. (2008), students with disabilities found that learning and practicing goal setting helped them to meet the demands of their academic schedule. In the Finn et al. (2008) study, college students with disabilities indicated that the use of goal setting became a part of

their daily routine to help them make a plan and stick to it. Continuing to identify studies that focus on the strategies used in coaching models will help to assess the strength of such interventions as evidence-based practices for students with disabilities.

Receiving Accommodations

In response to the ADA Amendment Act of 2008, the Association on Higher Education And Disability (AHEAD) developed a conceptual framework to support the provision of receiving accommodations. As stated in the AHEAD guidance document (April, 2012), “Although the amendments and regulatory requirements occurred through separate federal processes... together they reflect a more mature understanding of disability that is essential for fostering a positive campus perspective on disability” (p. 1). This philosophical shift toward looking more at the process of accommodation rather than strict guidelines around documentation is an area that needs extensive study (Klotz, 2012). Among other things, such research could explore the impact the new guidance on documentation practices may have on the further growth of self-determination in college students with disabilities.

Collaboration Across Campus

As previously mentioned, studying instructional and environmental characteristics are an important component of supporting self-determination skills. It is critical for students with disabilities transitioning to postsecondary education to have the requisite self-determination skills; however, postsecondary education professionals need to continue to foster these skills within this environment. Since these characteristics impact self-determination, rigorous research is needed on which college characteristics provide an environment that supports these skills. What components of collaboration are essential to foster an environment that supports self-determination in higher education? What are the evidence-based practices that create an environment of support, professional development, and increased communication among faculty members and staff that could support self-determination (Dowrick, Anderson, Heyer, & Acosta, 2005; Humphrey, Wood, & Huglin, 2011; Korb, Lucia, Wenzel, & Anderson, 2011)?

Recommendations

It is hoped that over the next ten to fifteen years, the field of higher education and disability will better understand which evidence-based practices of self-determination are predictors of improved outcomes of retention, graduation, and further education or employment. Below are some recommendations for the field to consider:

1. Focus on the changes occurring in the process for receiving accommodations, along with increased research on mentoring programs, professional development, coaching, and other practices and potential predictors of retention and graduation of college students with disabilities.
2. Explore ways that researchers from different professional organizations can collaborate on research efforts and better understand the research needs within the secondary and postsecondary system, to better direct future funding or initiatives. One approach for establishing this collaboration is for the AHEAD organization to support a Research Special Interest Group (SIG) that could work in partnership with other research committees, in particular the Council of Exceptional Children’s Division on Career Development and Transition (DCDT).
3. Move the field of higher education and disability to examine more universal or global measures of self-determination. By identifying evidence-based practices within postsecondary settings, these practices can assist all college students with or without disabilities to pursue a course of study and graduate. As we learn more about the impact of these practices and their potential use as predictors, such research can be applied more universally as colleges and universities find ways to increase student engagement in higher education settings.

Conclusion

Increasing numbers of individuals with disabilities are entering postsecondary education to obtain the knowledge and skills they need to compete in a global economy. Correlational research in the field of special education has identified self-advocacy/self-determination as an evidence-based predictor in secondary transition, having an impact on improved post-school outcomes in education and employment (Test et al., 2013). Students with disabilities are still facing issues in both their transi-

tion to college and their retention to complete a degree or certificate. Special education researchers continue to examine the skills that can advance our understanding of how best to meet the self-determination needs of students as they transition to college. However, there is a need for increased research in higher education to identify evidence-based practices that can serve as predictors of improved outcomes for college students with disabilities. The identification of instructional and environmental factors in higher education that are supportive of self-determination is critical to further inform the field, both in special education and higher education.

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Universally Accessible Instruction: Oxymoron or Opportunity?

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Abstract

The movement to extend universal design from physical to instructional environments has escalated in the past two decades. Frameworks to guide the field of postsecondary education in its efforts to intentionally build accessibility features into college teaching and course materials include Universal Design in Education, Universal Design for Instruction, Universal Design for Learning, Universal Design of Instruction, and Universal Instructional Design. Implementation activities advanced in part by federal funding have generated numerous resources including journal articles, websites, professional development materials, and thematic conferences and training. Yet, impediments that must be addressed if practices are to expand and evolve in creative ways for diverse audiences in postsecondary settings include a dearth of empirical evidence about the efficacy of various approaches as well as confusion in terminology. This article includes a description of various frameworks, factors that have played a role in advancing the concept at the postsecondary level, resources associated with implementation efforts, and calls for collaborative action across administrative units to promote an inclusive campus culture through efforts to intentionally design and deliver accessible instruction.

Keywords: Universal design, inclusive college instruction, accessible instruction, instructional design frameworks (UDE, UDI, UDL, UID)

As the *Journal* celebrates thirty years of publication, compelling evidence underscores its role in chronicling substantive efforts to promote the advancement of full participation in higher education for persons with disabilities. Moving beyond the parameters of access to the physical environment that characterized much of our work in the 1950's through the 1980's, over the last two decades the field has embraced the notion of universal design in the instructional environment. This article examines initiatives to extend access to postsecondary instruction and curriculum, which in reality are at a nascent stage. Discussion of the chronology of frameworks that are widely represented in the literature on implementation studies is followed by an overview of factors that have advanced these frameworks and calls to action to sustain the movement.

Foundational Frameworks for Designing Accessible Instructional Environments

Beginning with efforts to accommodate college students with physical disabilities following World War II, institutions of higher education have progressed from creating accessible buildings and spaces to assuring access to educational programs. The focus on accessible instruction, generally adapted from the concept of universal design (UD) in the physical environment (Center for Universal Design [CUD], 1997), encompasses several creative frameworks that permeate the literature predominantly since the late 1990s. Over the past decade, these frameworks have provided a context for a broad array of applications centered on proactively designing college teaching that is responsive to diverse learners. Initial discussions about creating inclusive learning

environments for children with physical, sensory, and learning challenges began in the 1980s when the Center for Applied Special Technology (CAST) began to explore flexible curricular materials and activities and the use of new technologies to meet the needs of students with diverse learning profiles (U. S. Office of Special Education Programs, 1999). In 1995, CAST began to articulate Universal Design for Learning (UDL) and its principles (Center for Applied Special Technology, 2014) to guide “curriculum developers and teachers in applying the flexibility of digital media to create curriculum with built-in adjustability” (Rose & Meyer, 2006, p. ix). Implementation of UDL to remove barriers from the curriculum is guided by three principles derived from Vygotsky and research on the neuroscience of learning that are further delineated by 31 guidelines for practice. Three neural networks are essential in the learning process, according to Vygotsky: recognition, strategic, and affective networks (Rose & Meyer, 2006). The UDL principles displayed in Table 1 were first published in 1998 (Meyer & Rose, 1998) with the purpose of supporting the three neural networks in all facets of the curriculum (teaching and assessment methods, materials, etc.). Although UDL is not a technology-only approach, by providing a context it can lead to effective technology use supporting all learners (Coyne et al., 2006).

Within the context of transforming the culture of higher education to be inclusive of all students, Silver, Bourke, and Strehorn (1998) targeted their work based on UD exclusively to postsecondary instructional settings. Their exploratory study on universal instructional design (UID), the first to introduce the concept of UD in a college setting, involved faculty at a single, large, research university who were asked to comment on flexible instructional accommodations (e.g., accessible class notes, scaffolding, study guides, visual aids, multimodal presentations, extended test time). Faculty focus groups also identified challenges of the approach that still remain as impediments to widespread adoption of any framework fifteen years later, and these authors underscored the need for more research to determine the necessary components of a UID approach. Although no principles or guidelines for implementation were articulated, the exploratory work of Pliner (2004) and Silver et al. (1998) to develop a working definition comprises a significant contribution to the field that has served as a framework for other applications (see Table 1). Higbee (2003) used the UID concept in a postsecondary curriculum transformation project that generated eight guidelines (Fox, Hatfield, & Collins, 2003) adapted

from the CUD’s UD principles (1997) and Chickering and Gamson’s work (1987), and the University of Guelph based its training with faculty adapting their courses to be more inclusive on the UID framework (Palmer & Caputo, 2003).

Universal Design in Education (UDE) was defined by Bowe (2000) as “the preparation of curricula, materials, and environments so that they may be used, appropriately and with ease, by a wide variety of people” (p. 45). He based this definition on ideas about curriculum access specified in the 1997 Reauthorization of the Individuals with Disabilities Education Act (IDEA). Orkwis and McLane (1998) had discussed these ideas, and they were presented in a publication of the U.S. Office of Special Education Programs (1999) that noted the benefits of using technology to create accessible curricula. Bowe used the UD principles and 31 guidelines from the CUD as the basis for instructional examples for K-postsecondary settings.

Scott, McGuire, and Foley (2003) described Universal Design for Instruction (UDI), a concept that includes nine principles (Scott, McGuire, & Shaw, 2001). Seven were adapted from the CUD; two were created based on literature sources about effective and validated instructional strategies with students of varying abilities (Kameenui & Carnine, 1998) and recommended practices for college teaching (Chickering & Gamson, 1987). With applications intended for postsecondary faculty teaching with or without technology aids, the UDI principles represent a synthesis from seminal resources on UD and effective teaching to articulate new educational definitions for this UD framework.

Finally, Burgstahler (2007) has described Universal Design of Instruction, which also draws on the UD principles with instructional examples that are organized under eight performance indicator categories. She stated that UD is a characteristic “that can be applied in any general philosophy or approach to instruction or any instructional practice” (2008, p. 28). The next section delineates transformative legislation and initiatives that have promoted accessibility and inclusive instructional environments.

Catalysts for Change

Throughout the disability rights movement, legislation has been at the core of advocacy and action. At the K-12 level, strategies to improve access to the general education curriculum for students with disabilities (SWD) are required by the Individuals with Disabilities Education Act Amendments ([IDEA],

1997). Early support for incorporating digital tools in elementary and secondary curricula included federal funding of several initiatives including the work of CAST (U.S. Office of Special Education Programs, 1999). At the postsecondary level, Subpart E of Section 504 of the Rehabilitation Act of 1973 requires non-discriminatory treatment to assure equal opportunity. Access historically has been based on academic adjustments and accommodations, an approach described by some as reactive and based upon a deficit model (Burgstahler, 2008; Jones, 1996; Kroeger, 2010).

Revisions to the Higher Education Opportunity Act of 2008 (HEOA) shift the focus to a proactive approach to advance the goal of inclusive instruction. A definition of universal design applied to learning is provided, meaning a scientifically valid framework for guiding educational practice that: (a) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and (b) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient (Title 1, Section 103, a)(24)(A)(B). More specifically, training future teachers to create more inclusive environments using this approach is emphasized. Wording that extends to English language learners whose background knowledge and verbal lexicons can create barriers to instructional access can serve as a springboard for collaborative efforts across campus academic support services to develop faculty resources for teaching diverse learners. UD and its instructional applications are a natural fit.

Other catalysts with tremendous potential for advancing instructional access include technology-targeted federal legislation and specific rulings of the Office for Civil Rights about accessibility of all instructional materials including digital resources. Section 508 of the Technology Related Assistance for Individuals with Disabilities Act of 1988 and the World Wide Web Consortium's Web Accessibility Initiative (W3C-WAI) delineate requirements and standards for web accessibility. As faculty incorporate more electronic and information technologies into the classroom, it is imperative (and serendipitous!) that training and assistance in creating accessible instruction become a priority for systematic, institution-wide, collaborative planning and training. Disability service providers can play a key role through collaboration with multiple campus units to advance "a culture shift to facilitate

the full participation of all students, including those with disabilities" (Huger, 2011, p. 3).

In addition to legal mandates, federally funded grant projects have effected change. College enrollment of students with disabilities has shown a trend of steady growth (Raue & Lewis, 2011), in part reflecting federal regulations about postsecondary transition planning (Individuals with Disabilities Education Improvement Act, 2004). Recognizing the significant role of college faculty in teaching students with disabilities, efforts to train them to more effectively address students' learning needs were hastened by federal funding initiated in 1999 through the U. S. Office of Postsecondary Education (OPE). A competitive grant process to promote a quality higher education for students with disabilities extended through four three-year funding cycles (1999-2011). More than 72 million dollars for demonstration projects were awarded to 94 applicants to develop creative, effective, and efficient teaching methods and other strategies for faculty and administrators. In their abstract, 40 of the projects explicitly identified goals and activities based on an application of UD to teaching and instruction through professional and curriculum development activities (U. S. Office of Postsecondary Education, 2014). Additional funding from 2000-2014 totaling more than 80 million dollars was appropriated by the National Science Foundation (NSF) under its Research in Disabilities Education program (M. Leddy, personal communication, April 30, 2014) for research including students with disabilities in STEM disciplines. Several grantees incorporated UDL and UDI frameworks in their implementation efforts. A key selection criterion for funding decisions by both agencies is dissemination of project information and products. The *Journal* serves a pivotal role in advancing knowledge and research about instructional practices and outcomes based on UD frameworks.

Promoting UD Based Inclusive College Instruction

The Role of the *Journal of Postsecondary Education and Disability*

One mechanism for cataloging progress in advancing the concept of UD as a tool for instructional access, and one that seems fitting on a thirtieth anniversary, is to examine efforts by the *Journal* to chronicle an emerging trend. An informal approach was used to review titles and abstracts of published manuscripts dating back to those in the *Journal's* precursor publication, the *Association on Handicapped Student Services Programs in Postsecond-*

Table 1

A Chronology of Design Frameworks and Principles for Postsecondary Instruction and Curriculum

Framework	Source	Principles
Universal Design for Learning (UDL)	Meyer & Rose (1998)	<ul style="list-style-type: none"> - Multiple methods of presentation - Multiple methods of expression - Multiple options for engagement
Universal Design in Education (UDE)	Bowe (2000)	<ul style="list-style-type: none"> - 7 principles of UD <ul style="list-style-type: none"> • equitable use • flexibility in use • simple and intuitive • perceptible information • tolerance for error • low physical effort • size and space for approach and use
Universal Design for Instruction (UDI)	Scott, McGuire, & Shaw (2001)	<ul style="list-style-type: none"> - Adapted from 7 principles of UD <ul style="list-style-type: none"> • Equitable use. Instruction is designed to be useful to and accessible by people with diverse abilities. • Flexibility. Instruction is designed to accommodate a wide range of individual abilities. • Simple and intuitive. Instruction is designed in a straightforward and predictable manner regardless of the student's experiences, knowledge, language skills, or current concentration levels. • Perceptible information. Instruction is designed so that necessary information is communicated effectively to the student regardless of ambient conditions or the student's sensory abilities. • Tolerance for error. Instruction anticipates variation in individual student learning pace and prerequisite skills. • Low physical effort. Instruction is designed to minimize nonessential physical effort in order to allow for maximum attention to learning. • Size and space for approach and use. Instruction is designed with consideration for appropriate size and space for approach, reach, manipulation and use regardless of a student's body size, posture, mobility, and communication needs. - 2 additional principles <ul style="list-style-type: none"> • Community of learners. The instructional environment promotes interaction and communication among students and between students and faculty. • Instructional climate. Instruction is designed to be welcoming and inclusive.

(Table 1 Continued)

Universal Instructional Design (UID)	Higbee (2003)	<p>- 8 principles based on UD and Chickering & Gamson</p> <ul style="list-style-type: none"> • Create a climate that fosters trust and respect. • Determine the essential components of the course. • Provide clear expectations and feedback. • Explore ways to incorporate natural supports for learning. • Provide multimodal instructional methods. • Provide a variety of ways for demonstrating knowledge. • Use technology to enhance learning opportunities • Encourage faculty-student contact.
	University of Guelph (2003)	<p>- 7 principles based on UD</p> <ul style="list-style-type: none"> • Be accessible and fair to all parties. • Be straightforward and consistent. • Provide flexibility in use, participation and presentation. • Be explicitly presented and readily perceived. • Provide a supportive learning environment. • Minimize unnecessary physical effort or requirements. • Ensure a learning space that accommodates both students and instructional methods.
Universal Design of Instruction (UDI)	Burgstahler (2007)	-7 principles of UD

ary *Education Bulletin* (1983-1986, volumes 1-4), and extending to archived issues of the *Journal on Postsecondary Education and Disability* (JPED) (1991-2013, volumes 9-26) on the AHEAD website. *Journal* volumes 5-8 (1987-1990) were accessed in a database developed by the Literature Mapping Work Group (2014). Manuscript titles and abstracts were reviewed to identify those with explicit reference to UDI, UDL, UID, UD and inclusive instruction, and UD in higher education (UDHE), a generic term reflecting the application of UD to diverse areas such as student affairs, web page design, information dissemination, and instruction (Scott, Loewen, Funckes, & Kroeger, 2003). None of the published manuscripts referenced UDE. A number of manuscripts did refer to one or more of the terms in the narrative sections but not in their title or abstract. Manuscript reference lists were not reviewed for citations pertinent to the search terms. Prior to 2003, none of the *JPED* articles met the review criteria. In 2003, *JPED*'s content began to reflect efforts to extend the UD concept from the physical to the instructional environment. From 2003-2013, 23 articles have focused specifically on UD based frameworks for inclusive approaches to teaching with three topical issues, Volumes 17(1), 19(2), and 25(3). Manuscript content includes approaches to professional development, examples of instructional strategies and methods, faculty implementation activities, and students' and faculty perceptions of the utility of inclusive strategies. Only a limited number described research about outcomes of UD based instruction.

Other evidence of AHEAD's leadership role in advancing educational access and inclusive instructional environments is seen in sponsorship of a UD Think Tank in 2002. Many of the questions, barriers, and recommendations articulated by the Think Tank continue to be relevant a decade later including the charge to pursue issues of inquiry for research. AHEAD has also compiled a web page with links to numerous sources of information (Universal Design Resources, <https://www.ahead.org/resources/universal-design/resources>).

Where We've Been...and Where We're Headed

Without question, interest in extending the UD paradigm to college teaching is dynamic, expanding, and engaging diverse audiences. Regardless of terms used in an informal Internet search (e.g., UDI, UDL, UID, UDE, UDHE, postsecondary instruction, college teaching, universal design, universal design for learning, universal design for instruction, universal instructional design, universal design in education,

universal course design, college teaching and learning), hundreds of links exist to articles, websites (many with inactive links), and resources. Table 2 presents links to diverse resources such as disability support offices, faculty oriented teaching and learning sites, and professional conferences sponsored by organizations and universities, all of which promote accessibility, universal design focused on teaching, or technology applications for inclusive classrooms. Professional organizations are instrumental in disseminating emerging instructional practices based on UD frameworks through presentations at national and regional conferences. Networking with campus colleagues about their professional affiliations can foster interest in professional development outlets and joint presentations that address creative approaches to teaching today's increasingly diverse undergraduates in traditional, blended, online, and flipped courses. Table 3 displays links to web sites that incorporate tools and inclusive strategies for use in course redesign including sites that were developed through OPE funding. Numerous guides, checklists, and descriptions exist on the Internet of ways to incorporate strategies into college teaching, whether shaped by UDL, UDI, UID, or other UD based frameworks. Journals with a focus on diverse audiences are publishing articles relevant to inclusive instruction (e.g., *Educausereviewonline*, *International Journal of Teaching and Learning in Higher Education*; *Journal of Accessibility and Design for All*; *Journal of Diversity in Higher Education*).

Interest in universal design and postsecondary instruction has become a topic of international interest with notable efforts to promote the idea in a number of countries including the European Union. The focus of a recent international conference in Dublin (Association for Higher Education Access & Disability, 2013), "Is Universal Design of Education Any of My Business," generated the interest of presenters and participants from nine countries underscoring the dynamic movement to promote accessible classrooms and materials across geographic boundaries. Presentations focused on topics such as embedding UD in the curriculum, designing materials based on UDL and UDI; digital inclusion; and accessibility in massive, open, online courses (MOOCs). Among international educators whose work often includes students with cultural differences as well as language barriers in addition to students with disabilities, the relevance of an inclusive approach resonates with their efforts to remove barriers and to promote international study. McGuire and ten Bloemendal (2013) recently introduced the notion of UDI as a template for in-

Table 2

Resources Promoting UD Based Approaches to College Teaching

Resource	URL
Mission Statements	
<ul style="list-style-type: none"> • University of Arkansas/Little Rock • Lone Star College System 	<ul style="list-style-type: none"> • http://ualr.edu/disability/home/mission/ • http://www.lonestar.edu/faculty-staff-reasonable-accommodations.htm
<ul style="list-style-type: none"> • AHEAD 	<ul style="list-style-type: none"> • http://www.projectshift-refocus.org/index.htm
Faculty Teaching and Learning Sites	
<ul style="list-style-type: none"> • Cornell University 	<ul style="list-style-type: none"> • http://www.cte.cornell.edu/teaching-ideas/designing-your-course/universal-design.html
<ul style="list-style-type: none"> • Michigan State University • The Ohio State University • University of Oregon 	<ul style="list-style-type: none"> • http://fod.msu.edu/oir/universal-design-learning-udl • http://ada.osu.edu/resources/fastfacts/index.htm • http://aec.uoregon.edu/faculty/reference.html
Professional Conferences	
<ul style="list-style-type: none"> • The Sloan Consortium 	<ul style="list-style-type: none"> • http://sloanconsortium.org/conference/2014/blended/universally-designed-instruction-tools-strategies-and-pedagogical-practices-
<ul style="list-style-type: none"> • International Conference on Computers Helping People with Special Needs 	<ul style="list-style-type: none"> • http://www.uld-conference.org/programme/topical-sections
<ul style="list-style-type: none"> • University of New Brunswick 	<ul style="list-style-type: none"> • http://www.unb.ca/conferences/udlconference/english/proposals.html

Table 3

Sources for Information and Tools Based on UD Frameworks for Instruction

Source	URL
California State University CAST	http://www.udluniverse.com/
Colorado State University	http://www.udlcenter.org/aboutudl/udlguidelines
Renton Technical College	http://accessproject.colostate.edu/
University of Arkansas	http://www.rtc.edu/AboutUs/DSDPGrant/
University of Connecticut	http://ualr.edu/pace/index.php/home/hot-topics/ud/
	http://www.udi.uconn.edu/
	http://www.facultyware.uconn.edu/home.cfm
University of Guelph	http://www.uoguelph.ca/tss/uid/
University of Iowa	http://research.education.uiowa.edu/universalaccess
University of Massachusetts/Boston	http://www.eeonline.org
University of Minnesota	http://www.cehd.umn.edu/passit/
University of Northern Colorado	http://www.unco.edu/equip/
University of Oregon	http://aec.uoregon.edu/faculty/reference.html
University of Washington	http://www.washington.edu/doit/
University of Wisconsin-Milwaukee	http://access-ed.r2d2.uwm.edu/

ternational educators to consider as a framework for addressing the needs of linguistically and culturally diverse learners in addition to students with learning problems. Soneson and Cordano (2009) affirmed the benefits of a UD approach to the academic environment in study abroad programs with the example of offering instructional materials in different formats. Indeed, universal design and accessible instruction are becoming an international dialog.

Moving the Movement Forward

In reality, the intentional development of inclusive, instructional postsecondary environments responsive to diverse learners is in its infancy. Momentum to reach a goal of universal instructional access by means of purposeful design is a laudable ideal. It represents commitment to the removal of barriers, a proactive approach that seeks solutions that are accessible to the greatest number of users. Anchored in the truism of diversity as an inherent feature of the human condition, it is an end for which to strive. However, Mace (1998), one of the originators of the concept of UD, astutely noted that “nothing can be truly universal; there will always be people who cannot use an item no matter how thoughtfully it is designed” (p. 24). Case-by-case accommodations will always be needed. Hence, the oxymoron of “universally accessible instruction.” Given the formative stage of the movement, the possibility of achieving or approximating universality of access to instructional environments is yet to be determined. A number of issues must be addressed if we are to avoid some of the pitfalls that have led to the use of invalidated interventions in the field of special education and promulgation of what later turn out to be fads. In the process of advancing a goal of universally accessible instruction, inevitable challenges are accompanied by provocative opportunities. The following recommendations are offered as levers of dialog and discussion:

- Clarify the UD framework and principles under study. When designing empirical studies to examine outcomes of UD based instructional approaches, terminology *does* make a difference. As observed by Dubin (1969), “empirical analysis has meaning only by references to a theory from which it is generated” (p. 7). The current literature, akin to earlier observations of McGuire, Scott, and Shaw (2006), is muddled. Terminology is imprecise with the interchangeable use of

UDL, UDI, UID, and UDE. Admittedly, the focus of each of these frameworks generally is on inclusive instructional environments that are responsive to diverse learners. Orr and Hammig (2009) stated, “differences in these approaches are less important than the commonalities” (p. 182). But each framework has its own set of principles and operational definitions. Researchers should define those variables under investigation by explicitly linking them to the principles and guidelines of the UD framework(s) shaping the study.

- Promote research that addresses the paucity of empirical evidence regarding the efficacy of these frameworks for promoting inclusion and learning. As underscored by Gregg (2007), evidence-based research on the effectiveness of innovations for accessing knowledge is, at best, sparse. Admittedly, the beginnings of such a base are trickling into the literature (e.g., Davies, Schelly, & Spooner, 2013; Embry & McGuire, 2011; Izzo, Murray, & Novak, 2008; Lombardi, Murray, & Dallas, 2013; Moon, Utschig, Todd, & Bozzorg, 2011; Schelly, Davies, & Spooner, 2011; Scott & Edwards, 2012; Smith, 2012; Street et al., 2012). In several recently published reviews of the literature on UD in higher education (Orr & Hammig, 2009; Rao, Ok, & Bryant, 2014; Roberts, Park, Brown, & Cook, 2011), a small number of studies that examined various outcomes were identified. The lag time between manuscript submission, acceptance, and publication in many journals undoubtedly impedes the rate of information dissemination about implementation, results, and replication efforts. Edyburn (2013) pointed out similar challenges related to innovative applications of technology, noting that innovative technologies “often reach the marketplace without evidence concerning their effectiveness” (p.11). The same could be said about UD based postsecondary instructional interventions. Yet, peer refereed journals such as *JPED* are beginning to reflect the movement from ideas to implementation, and this is progress.
- Pursue a systematic research agenda that builds the evidence base incrementally, and expand the focus of efficacy studies to include additional measures. Davies et al. (2013) and Lombardi et al. (2013) described surveys developed for their research that hold promise

for other studies. Other approaches could include classroom observation checklists, pre-post changes in student learning, and changes in requests for accommodations by students with disabilities in courses based on UD frameworks. Changes in the use of accommodations such as extended test time could be examined for courses with flexible approaches to assessment. Affective variables of faculty such as empathy and approachability are a “powerful contributor to, perhaps even determinant of, the quality of SWDs’ experiences in postsecondary education” (Orr & Hammig, p. 193), offering another focus for research on inclusive instruction.

- Consider the observations of Berliner (as cited in Odom et al., 2005) that educational researchers face complex challenges in conducting scientific research. He cautioned that “science in education is not a hard science but it is a ‘hardest to do science’” (p. 139). Although focused on developing criteria for evidence-based practices in special education, a special issue of *Exceptional Children* (2005, Volume 71(2)) addresses a range of challenges such as research designs and methodologies that researchers of the movement to promote inclusive postsecondary instruction are encouraged to consider. Another valuable resource about the process of improving learning outcomes for students through pedagogical experimentation is the Carnegie Foundation for the Advancement of Teaching, particularly its work on the scholarship of teaching and learning (Hutchings, Huber, & Ciccone, 2011). The time is prime for leadership efforts to advance an agenda addressing quality indicators of research about the efficacy of UD based initiatives in diverse contexts with diverse learners.
- Broaden the constituencies when promoting UD based instructional innovation to include faculty across multiple disciplines, administrators, instructional designers, information technology specialists, and consumers. Regardless of the framework, the goal of efforts to apply UD in postsecondary instructional environments is access, designing and implementing instruction and assessing learning in ways that include the greatest number of students possible. Disability services personnel can be agents for change by collaborating with campus leaders about accessibility and inclusive instructional environments. Benefits accrue to many consumers, and this is a marketable idea.
- Capitalize on the digital revolution. Some technologies such as the Internet and now wireless access (Wi-Fi) are ubiquitous. Today’s high school students view their educational futures grounded almost entirely around technology. They “are in fact a ‘Digital Advance Team’ illuminating the path for how to leverage emerging technologies effectively for teaching and learning” (Van Der Werf & Sabatier, 2009, p. 7). Rowland, Mariger, Seigel, and Whiting (2010) opined that “effectiveness and accessibility of electronic services and materials” will “become a key measure of excellence for institutions of higher education nationwide” (p. 16). The time is opportune to use these levers to advance the agenda of access and full inclusion. Harrison and Lanterman (2012) underscored the nuances of the dialog in our postsecondary institutions where “course design is seen as the prerogative of faculty, the experts in their academic fields” (p. 209). Their advice is a call to action: “DS providers can enter into institutional design processes as partners whose expertise in disability-related thinking can help ensure that the results are not simply functional and pleasing but JUST – just, usable, sustainable, and transformational” (p. 209).
- Explore innovative approaches to engaging faculty in course redesign and delivery. The traditional reward system on many campuses reinforces scholarly research over teaching. Designated teaching awards that highlight exemplary teaching and the commitment and resources of named benefactors can showcase faculty efforts to address classroom diversity through inclusive UD based strategies. Collaboration with campus academic units that recognize exemplary teaching could include a modest monetary incentive to be used for future innovations in course design and delivery.
- Promote inclusive instructional practices via centers for teaching and learning. Collaboration with instructional designers whose responsibilities are expanding given the growth of online education is a logical fit regardless of where they may be housed within the institution. As noted by Edyburn (2010), there is an opportunity to define UDL based interventions as a subfield within instructional

design, and that observation applies to any of the frameworks discussed herein.

- Proactively seek out faculty who are teaching in universally accessible ways and explore ideas for collaborating. Caution is warranted when offering training on UD-based approaches to teaching as assumptions can be false. While the notion of UD and its application to instruction may seem novel, it is erroneous and counterfactual to assume that college teaching is constrained to traditional models. Barr and Tagg (as cited in Fink, 2003) outlined elements of a paradigm shift where colleges and universities are “thinking less about providing instruction (the teaching paradigm) and more about producing learning (the learning paradigm)” (p.17). Rather than preaching to the faculty choir who already *are* inclusive thinkers and teachers, finding ways of *expanding* the faculty choir should become the mission.

In many ways, the movement toward universal access to instructional environments over the past three decades has been dramatic. Its trajectory has propelled it into the mainstream of conversations in higher education. Kuhn (1962) reminds us that “history suggests that the road to a firm research consensus is extraordinarily arduous” (p. 15) and that the transition of a field of study to maturity is seldom sudden. His words are replete with wisdom. The quantity and quality of the work that remains to be done in promoting the goal of universally accessible instruction as well as the leadership required in campus wide, collaborative efforts and research initiatives will temper outcomes dramatically. Full participation will validate equal access for *all* consumers. That is the opportunity.

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Higher Education and Disability: Past and Future of Underrepresented Populations

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Abstract

Over the past half century higher education in the United States has been challenged to develop and implement policies and practices that effectively promote the access, retention, and graduation of diverse underrepresented populations. One of these populations is comprised of individuals with disabilities, whose equal access to higher education is mandated by Federal legislation, notably Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. One unintended consequence of this legislation appears to be that institutions may be content with only meeting the letter of the law by providing accommodations and supports for equal access to the physical plant and to academic instruction, while neglecting the social sphere. However, leading theories of persistence in higher education highlight both academic integration and social integration, as reflected in having a sense of “belonging” on campus, as key factors for student success. Emerging trends suggest that the next phase of progress for students with disabilities in higher education will be establishing and implementing shared norms about what it takes to make a campus barrier-free and welcoming – a place where disability is not seen as a marker of membership in a “special” group virtually nobody wants to be a part of but is, rather, accepted and appreciated as an element in a valued range of diversity.

Keywords: Diversity, equal access, social inclusion, sense of belonging, campus climate

As important as Section 504 and the ADA have been, and as important as it is for people with disabilities to have access [to] legal remedies to overcome discrimination, compliance with the law is not enough. It is merely the starting point. . . universities and postsecondary institutions must move ‘beyond compliance’ and adopt new philosophies and approaches regarding students with disabilities (Taylor, 2003).

The Civil Rights movement that emerged in the United States in the 1960s focused on ending discrimination against Blacks, but it also inspired action by numerous other marginalized groups, including people with disabilities (Fleischer & Zames, 2001). People with disabilities were, however, different from other groups fighting for their rights because they also comprise a marginalized minority within those groups – a status that has been described as a “double whammy” by making them liable to discrimination on at least

two counts (Hollins, Downer, Farquarson, Oyepeju, & Kopper, 2002).

Education was a major battle arena as members and advocates of marginalized groups came together to demand equal access and treatment in the public school system and higher education. People with disabilities arguably faced the highest barriers of all since they were liable to be excluded from even attending school and many institutions of higher education (IHEs) routinely rejected applicants because they had disabilities (Paul, 2000). Significant victories came in the 1970s with passage by the U.S. Congress of what is now known as the Individuals with Disabilities Education Act ([IDEA], 2004), which assures a “free appropriate public education” for children with disabilities ages three through 21, as well as Section 504 of the Rehabilitation Act of 1973 (Section 504, 1973), which prohibits discrimination against people with disabilities by educational institutions, including IHEs, receiving federal funding.

The Americans with Disabilities Act of 1990 ([ADA], 1990) expanded this requirement to institutions not receiving federal funding. Later reauthorizations of the IDEA came to define special education's ultimate purpose as the preparation of children with disabilities for adulthood, particularly with respect to "further education, employment, and independent living." The IDEA supports this purpose by requiring that transition-to-adulthood services be provided to students in special education based on individualized plans developed by age 16 at the latest. Special educators and many parents commonly encourage students to aim for further education, and research indicates this is listed as a goal in over 80% of transition plans (Newman, et al., 2011).

Diversity and Disability in Higher Education

The combination of special education and transition-to-adulthood services required by the IDEA and the nondiscrimination mandates of Section 504 and the ADA have been credited with supporting increasing rates of enrollment in higher education by people with disabilities (Wolanin & Steele, 2004). Diversity and disability may be examined from the perspective of (a) diversity among students with disabilities (SWDs) or (b) disability as a component of diversity in higher education. With regard to the former, there is tremendous diversity among SWDs as to their kinds of disabilities, each of which tends to be associated with different sets of challenges. It is common to distinguish between disabilities that are (a) obvious or visible and therefore most likely to come to mind for members of the public in response to the term "disabilities" (e.g., conditions requiring wheelchair use, blindness) and (b) those that are hidden or invisible (e.g., learning disabilities, attention disorders). Fewer than 10% of SWDs have obvious disabilities, while the great majority has hidden disabilities (Newman, et al., 2011).

The predominance of hidden disabilities is significant when considering disability as a component of diversity in higher education. One reason is that students with hidden disabilities are not visible on campus in the same way as students of color or wheelchair users might be, which is likely to leave the mistaken impression that disabilities are rare among students at an IHE. Another reason is that students with hidden disabilities are quite likely to want to keep them hidden due to the associated stigma, and therefore do not self-disclose to peers who might provide social supports, or on surveys used to estimate SWD numbers, or to obtain classroom accommodations and other supports to which they might be entitled under the ADA (Litner, Mann-Feder, & Guerard, 2005).

With regard to disability as a component of diversity in higher education, numerous diverse subpopulations have been identified and studied. To gain a view of the range of subpopulations and the attention given to them, we examined and categorized all peer-reviewed research articles that appeared in five journals devoted exclusively to higher education from 2006 through 2012. These journals included two selected because they provide broad coverage of higher education issues, *The Review of Higher Education* and *Research in Higher Education*. In addition, the *Journal of College Student Retention: Research, Theory and Practice* was chosen because SWDs have substantially lower retention rates than their peers without disabilities (Belch, 2005; Newman et al., 2011); the *Community College Journal of Research and Practice* because SWDs are more than twice as likely to attend two-year than four-year institutions (Newman et al., 2011); and the *Journal of College Student Development* because it is geared to the student affairs profession, which has a commitment to the development of the "whole person" (Braxton, 2009).

The results of this review are shown in Table 1. Of 906 articles we examined, 312 (34.4%) were on 23 specific subpopulations. Only 11 of the articles (1.2% of the 906 examined) focused on SWDs, suggesting that this population is not a high priority in higher education generally and also that disability researchers and advocates seldom seek to publish in "mainstream" higher education journals. As shown in Table 2, another review we conducted found that nearly 80% of articles on social issues for postsecondary SWDs appeared in disability-focused journals, with the *Journal of Postsecondary Education and Disability* having the most at 16 followed by the *Journal of Learning Disabilities* at four. Another indication of the anomalous position of SWDs among diverse subpopulations is that they are often not included in the diversity initiatives conducted by many IHEs to foster greater understanding of and connections between diverse student subpopulations (Higbee, Siaka, & Bruch, 2007).

Importance of a Sense of Belonging

The Disability Rights Movement was driven in large part by the resentment of people with disabilities that they were viewed and treated as second-class citizens. Despite much progress in promoting the full inclusion of people with disabilities, SWDs who are given voice in interviews and focus groups still report, often with much emotion, that they face many social barriers and often experience marginalization on campus (e.g., Denhart, 2008; Myers & Bastian, 2010; Najarian, 2008; Troiano, 2003). This is a matter of con-

Table 1

Student Subpopulations Covered in Five Peer-reviewed Higher Education Journals¹, 2006-2012

Subpopulation Covered	# Articles on a Subpopulation	% of Articles on a Subpopulation (N=312)	% of All Articles (N=906)
Ethnic/Racial Heritage			
Ethnically/Racially Diverse ²	43	13.8%	4.7%
African American/Black	37	11.9%	4.1%
Asian American	12	3.8%	1.3%
Hispanic/Latino(a)/Chicano(a)	45	14.4%	5.0%
Immigrant/International Student	9	2.9%	1.0%
Middle Eastern	3	1.0%	0.3%
Native American/Indigenous	8	2.6%	0.9%
White	3	1.0%	0.3%
Ethnic/Racial Heritage Subtotal	160	51.3%	17.7%
Gender			
Female	28	9.0%	3.1%
Male	7	2.2%	0.8%
Gender Subtotal	35	11.2%	3.9%
Other Characteristics			
Athletes	12	3.8%	1.3%
Bereaved	1	0.3%	0.1%
Christian	3	1.0%	0.3%
DISABILITIES	11	3.5%	1.2%
Dislocated Workers	1	0.3%	0.1%
Gamblers	3	1.0%	0.3%
Home-schooled	4	1.3%	0.4%
Non-normative Sexual Orientation	15	4.8%	1.7%
Low Income/First Generation	25	8.0%	2.8%
Non-traditional Students	8	2.6%	0.9%
Struggling Students	5	1.6%	0.6%
Substance Users	26	8.3%	2.9%
Student Activists	1	0.3%	0.1%
Military Veterans	2	0.6%	0.2%
Other Characteristics Subtotal	117	37.6%	12.9%

¹ *Community College Journal of Research & Practice* (39.5% of 195 articles on a subpopulation); *Journal of College Student Development* (47.4% of 293 articles on a subpopulation); *Journal of College Student Retention* (30.1% of 156 articles on a subpopulation); *Research in Higher Education* (14.2% of 197 articles on a subpopulation); *Review of Higher Education* (30.8% of 65 articles on a subpopulation).

² "Diverse" means target population comprised two or more non-White subpopulations, or research was conducted on the effects of campus diversity initiatives.

Table 2

Peer-reviewed Research Articles on Social Issues for Postsecondary Students with Disabilities, by Year Published, Methods Used, Target Population, and Type of Journal in which Published

	1982- 1987	1988- 1992	1993- 1997	1998- 2002	2003- 2007	2008- 2012	Total
Year Published	2	7	12	6	11	30	68 (100%)
Method Used							
Qualitative	1	4	4	3	4	13	29 (42.6%)
Literature Review	1		4	2	3	8	18 (26.1%)
Quantitative		2	3		3	8	16 (23.5%)
Mixed Methods		1	1		1	1	4 (5.9%)
Experimental				1			1 (1.5%)
Target Population							
All Disabilities		2	4	4	4	8	23 (33.8%)
Learning/Attention	1	1	3	1	4	8	18 (26.5%)
Hearing	1	3	3		1	2	10 (14.7%)
Psychiatric			1	1		2	4 (5.9%)
Autism spectrum					1	2	3 (4.4%)
Orthopedic		1				2	3 (4.4%)
Intellectual/Developmental					1	1	2 (2.9%)
Visual						1	1 (1.5%)
Acquired Brain Injuries						1	1 (1.5%)
Injured Military Veterans						3	3 (4.4%)
Type of Journal							
Higher Education				2	5	4	11 (16.2%)
Disability-Focused	2	7	12	3	6	23	53 (77.9%)
Other Type				1		3	4 (5.9%)

cern in view of the widespread understanding in higher education that students who feel socially accepted are more likely to persist and graduate than those who do not (e.g., Tinto & Pusser, 2006).

Research indicates that if new students do not start to feel like they “belong” within eight weeks of arriving on campus, they are at especially high risk for dropping out (Raley, 2007), while students who develop supportive social networks tend to be more successful academically (Antonio, 2001; Thomas, 2000). It has been argued that having viable social support networks may be particularly critical for SWDs in view of the greater challenges they are likely to face compared to their peers without disabilities (Mamiseishvili & Koch, 2010). SWDs, however, often experience stigmatization and social exclusion due to the negative attitudes of their peers and even faculty, or avoidance by others because of uncertainties about how to appropriately interact (Myers & Bastian, 2010; Nevill & White, 2011).

It is notable that a great deal of research and commentary has appeared in the higher education literature on how to make various underrepresented groups feel more welcomed and socially integrated on campus (about a quarter of the articles in Table 1 focused on social integration issues but, as indicated, articles on SWDs are rare outside of disability-focused publications). In addition to the previously mentioned diversity initiatives, most large IHEs responded to anti-discrimination mandates by establishing or supporting centers or clubs for various racial/ethnic minority groups that serve as safe havens where students can support each other to better understand and negotiate the complex sociocultural and bureaucratic landscape of the IHE (Tinto & Pusser, 2006). However, SWDs may not find these centers or clubs welcoming, as negative and stigmatizing perceptions of disabilities are common in just about all racial/ethnic groups (McDonald, Keys, & Balcazar, 2007).

Faculty members have often been identified as a key target of efforts to make SWDs feel like they truly belong, as too many continue to appear to lack a good understanding of disability issues in the classroom (Getzel, 2008). Like many people in the wider society, faculty members may tend to doubt the claimed disability status of students with hidden disabilities and may not believe that classroom accommodations should be provided because they give them unfair advantages (Barnard, Stevens, Siwatu, & Lan, 2008). SWDs have often reported feeling such negative perceptions and, as a result, deciding not to seek accommodations that might prove important to their academic success (e.g., Litner, Mann-Feder, & Guerard, 2005).

Research on Social Integration Issues for Students with Disabilities

Given the barriers to essential social integration often encountered by SWDs, one might expect that social issues would be a major research focus for this subpopulation. However, it has been observed that there is surprisingly little such research (Belch, 2005; DaDeppo, 2009; Papatirou & Windle, 2012; Trammel, 2009). Rather, most research articles address “technical” topics such as classroom accommodations, diagnostic assessments, and assistive technology. The relative neglect of social issues is reflected in the results of a literature review we conducted that found only 68 peer-reviewed research articles published from 1982 through 2012 on social issues for SWDs in higher education. Table 2 provides an overview of these articles according to year published, methods used, disabilities addressed, and type of journal.

The coverage and depth of the extant research can be aptly described as thin, with authors typically noting a dearth of research on social issues. For example, DaDeppo (2009) described research on postsecondary students with learning disabilities as in its “infancy.” However, a welcome trend towards greater concern with social issues is evident, with 30 of the 68 articles being published just in the last five-year period covered (2008-2012). Many of these recent articles reflect emerging trends that hold much promise for transforming IHEs so that making SWDs feel like they truly belong becomes a campus-wide commitment.

Why has there been a relative lack of research on social integration issues for SWDs? One factor is that much research is oriented to “technical” issues important for the academic integration of SWDs, such as how to reliably assess the unique learning needs of students in different disability categories and how to effectively provide supports. Interventions typically involve medical, educational, or assistive technologies applied at the individual level. Another factor, and perhaps a more significant one, is that non-discrimination legislation may have had some unintended consequences by guiding attention to “equal access” as the predominant intended outcome (Taylor, 2003). IHEs typically responded to Section 504 and the ADA by establishing disability support services (DSS) offices responsible for ensuring that qualifying students gain legally mandated equal access (Madaus, 2000). “Equal access” has been primarily interpreted as referring to physical access to campus facilities (e.g., building entry ramps, accessible housing) and to accommodations and supports enabling participation in academic activities (e.g., note takers for students with hearing impairments). In contrast, equal access to the co-curricular

domain (social, recreational, and other non-academic activities) has rarely been highlighted as a responsibility for DSS offices (Guzman, 2008; Loewen & Polard, 2010). The essential need for supportive social relationships is not mentioned in either Section 504 or the ADA, and is apparently therefore seldom seen as a priority issue for DSS offices.

Envisioning a Future of Diversity and Disability in Higher Education

As shown in Table 2, in recent years there has been a substantial increase in the number of articles relevant to social integration for SWDs. It is notable that many of these recent articles appeared in special journal issues on important topics for social integration, indicating growing awareness of and collaboration among scholars on this issue. Likewise there have been edited monographs addressing similar matters that were not included in our review of articles in peer-reviewed journals. Described below are several emerging trends reflected in the literature that hold promise for raising awareness about the social integration issue and stimulating action to address it. All of these trends point towards a possible future in which the campus climate is experienced by SWDs as welcoming and supportive so that all students feel like they truly belong.

Reorienting Disability Support Services towards the Social Model

Understandings of the causes of and appropriate responses to disabilities have commonly been classified as fitting either a medical or a social model. The medical model targets the individual for intervention, and potentially provides SWDs with essential supports for higher education success. According to the social model, disability is a social construction emerging from society's environmental, economic, and cultural barriers to full social acceptance and inclusion (Fleischer & Zames, 2001). These models are not mutually exclusive but can complement each other. However, DSS offices, with some exceptions, have been critiqued as being guided almost exclusively by the medical model, which is congruent with the ADA's orientation to ensuring equal access for individual SWDs but does not direct attention to important social issues of stigma and unwelcoming campus environments (Hadley, 2011). Wider adoption of the social model is expected to reorient DSS offices to expand beyond a narrow interpretation of equal access to also address campus-level social barriers and foster social inclusion, as promoted in the special "Disability Studies" issue of the *Journal of Postsecondary Education and Disability* (Volume 23, Number 1, 2010) (e.g., Gabel,

2010; Guzman & Balcazar, 2010; Strauss & Sales, 2010; Thornton & Down, 2010).

Enhancing Collaboration among Student Services

One of the themes running through a special issue of *New Directions for Higher Education*, edited by Harbour and Madaus (2011), was that more collaboration among student services is needed to better address the physical and social barriers faced by SWDs. Currently various IHE offices and programs tend to be situated in what have been called bureaucratic "silos" with the DSS office typically considered to have primary or sole responsibility for supporting SWDs (e.g., Burnett & Segoria, 2009). The University of Connecticut provides a model for how the barriers inherent in silos can be broken down and commitment for supporting SWDs expanded (Korbel, et al., 2011). Key elements of the model include (a) having each DSS office staff member serve as a liaison to promote collaboration with specific departments across campus, and (b) conducting workshops on a range of disability-related topics for various student affairs units, which also serve as venues for developing collaborative partnerships. An example of the potential of cross-unit collaboration is provided by Wessel, Wentz, and Markle (2011), who described how at least five different offices at a university collaborated to organize a "power soccer" club so undergraduate power wheelchair users could participate in athletics, with those who were subsequently interviewed reporting enhanced friendships, greater self-confidence, and improved communication and interpersonal skills.

Including Disability in Diversity Initiatives

As noted earlier, many IHEs implement diversity initiatives, but these often fail to include disability. In line with the emerging idea that greater collaboration is needed across student services, DSS offices might work with those involved in diversity initiatives to strengthen or add a focus on disability (Higbee et al., 2007). This would provide an avenue for promoting the kind of language advocated by social model proponents to talk about disabilities in order to move away from the deficit orientation inherent in medical model descriptions. For example, Depoy and Gilson (2008) promote use of the terms *typical* and *atypical* to highlight the fact that human characteristics occur along a continuum and also to avoid the value judgments inherent in commonly used terms such as *normal* and *abnormal*, which imply a binary division rather than a continuum. In this vein, there has been increasing use of the term *neurodiverse* (as opposed to *neurotypical*) to describe people with disabilities such as autism, learning disabilities, attention disorders, or

certain psychiatric disorders.

Neurodiverse individuals may in fact have advantages in certain situations and occupations such as the attention to detail that many people with autism can bring to a task (Armstrong, 2010). Research also suggests that people with disabilities achieve more positive self-identities when they are able to “reframe” problematic personal characteristics as lying on a continuum of diversity rather than being outside the range of normalcy (Hahn & Belt, 2004; Olney & Kim, 2001). As use of neurodiverse and other non-stigmatizing terms becomes the standard, we can expect SWDs to gain enhanced feelings of belonging that in turn support the development of more positive self-identities and greater willingness to self-disclose in order to access services and supports promoting improved social and academic outcomes.

Extending Universal Design to the Co-curricular Domain

Ensuring equal access often involves use of universal design, which refers to the modification of environments and activities so they are accessible to everyone, no matter their functional limitations (Roberts, Park, Brown, & Cook, 2011). Universal design is best known with regard to physical access, while what is known as universal design for learning is increasingly being used to make educational materials and activities more accessible for students with a wide range of learning styles and physical and sensory abilities. Universal design for learning holds the promise of helping to “normalize” the higher education experience of SWDs by reducing the need for them to self-identify and follow detailed procedural steps necessary to obtain classroom accommodations. The universal design approach also has the potential to improve access to the co-curricular domain (e.g., large screen transcription of announcements and speeches at public events) (Belch, 2005; Johnson, 2000; Strange & Banning, 2001).

Promoting Change through Student Activism

The Disability Rights Movement has achieved many successes largely because people with disabilities have stood at the forefront and become visible as fellow human beings. The frontline advocacy of SWDs themselves may also be essential to successfully prompting IHEs to do what is needed to create campus environments that are truly welcoming for all. The Beyond Compliance Coordinating Committee at Syracuse University provides one model for student activism. According to the organization’s website (<http://bcccsyracuse.wordpress.com/>), it was founded in 2001 by a group of graduate SWDs with member-

ship open to all students. The organization has held numerous awareness-raising events and worked with the university administration to change policies and practices. The committee has achieved national reach through publications and conference presentations and its model has been adopted at other IHEs. Another organization working to strengthen the collective voice of SWDs is the Youth Legacy Foundation. Its activities include a Higher Education Network (currently focused in Minnesota) designed to link student groups at different IHEs so they can share resources and expand their impact and reach (http://youthlegacyfoundation.org/?page_id=621).

Assessing Progress in Creating Welcoming Campus Climates

The various activities described above may be viewed as components of a broader initiative to transform what has been called the “campus climate” so it is experienced by SWDs as welcoming and fully accessible (Huger, 2011; Wilson, Getzel, & Brown, 2000). Over the years a number of instruments have been developed to assess how welcoming the climate is for diverse student subpopulations, including several specifically for students with disabilities. The College Students with Disabilities Campus Climate survey is comprised of 43 six-point Likert scale items (Lombardi, Gerdes, & Murray, 2011). The Assessment of Campus Climate to Enhance Student Success consists of several questionnaires that gather the perspectives of administrators and staff, faculty, and students (Vogel, et al., 2008). AHEAD offers a service to administer these questionnaires online and produce summary reports (http://www.ahead.org/program_eval_tools). Stodden, Brown, and Roberts (2011) provided a brief climate assessment tool consisting of 10 “agree” or “disagree” items (derived from a set of larger instruments on attitudes to people with disabilities, programmatic supports, facilities access, and instructional access) along with a scoring guide. Such instruments can be used by faculty and administrators to evaluate and improve their programs to better serve SWDs, and by SWD groups to validate their advocacy efforts to promote change and track the extent to which change is happening over time.

Conclusion

The ultimate goal of the Disability Rights Movement has been to reach a point where everyone is viewed and treated as deserving of respect and full social acceptance. Higher education can play a leadership role in attaining this goal by creating inclusive and welcoming campus environments that serve as models for the wider society. Such environments are not legally required, as they would be based on changed attitudes and behaviors typically not possible to legislate. The development of welcoming attitudes and behaviors would instead seem to require continued advocacy by concerned individuals with and without disabilities who work to define and spread enhanced norms about what an IHE should be. Issues to consider include:

- Promote the benefits to higher education as a place of valuing and seeking out diverse ways of perceiving and thinking. This would require campuses to work toward a culture of exploration, acceptance, and support for and by a diverse range of teachers and learners.
- Advocate making campuses barrier-free and welcoming, physically, programmatically, and attitudinally. While many people may support this statement, it is imperative that SWDs and other marginalized students take up the charge for higher education campuses to be truly welcoming and supportive for all students. This requires that training (self- and group-advocacy) and support be provided to SWDs to step into the lead.
- Increase the proportion of faculty and staff with disabilities and other diverse characteristics, to raise the visibility and status of such persons on campus and provide SWDs with more potential role models, mentors, and advocates.
- Conduct more research on social integration issues for SWDs within the context of diversity. It is important to seek out and involve social scientists and others in this effort – too many times only researchers in the disability field are involved, which amounts to “preaching to the choir.” Research is especially needed on SWDs who are liable to face discrimination on other counts, such as being of ethnic/racial minority heritage or having a non-normative sexual orientation.
- Raise awareness of these issues broadly by publishing research articles and advocacy pieces in academic journals and general audience publications outside disability fields.

As the social model of disability continues to impact upon how disability services, supports, and accommodations are provided in higher education, increased opportunities will become available to support SWDs within the broader context of supporting all students to successfully access, retain, and complete the program of study of their choice. Furthermore, as SWDs are supported to rethink about themselves and others on a continuum of diversity, it is expected that all learners will feel a sense of belonging and express their needs to be successful learners, free of the restrictions and stigma that come with labels. Once campuses have become places where all students are supported to learn, regardless of their diverse needs, then we can all begin to feel the shift from a “rights based approach” to a “what’s right” approach to supporting SWDs in higher education.

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Musings of Someone in the Disability Support Services Field for Almost 40 Years

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Abstract

As the title states, this article is a collection of musings with only modest attempts at establishing an order for them or connections between them. It is not quite “free association,” but it is close. This structure or perhaps lack of it reflects the variety of things we do in our work. Many of the things we do have little in common with each other than providing access. Topics discussed include working with Vocational Rehabilitation Agencies, parents of students with disabilities, and the Office for Civil Rights. Suggestions for professional training are offered. Support/service animals and technology are discussed as well.

Keywords: Disability, accommodations, Higher Education, Americans with Disabilities Act, Office of Civil Rights, ADA, OCR

As the title states, this article is a collection of musings with only modest attempts at establishing an order for them or connections between them. It is not quite “free association,” but it is close. The editors of this Special Edition of the *Journal on Postsecondary Education and Disability (JPED)* were gracious in inviting me to write an article discussing our field. In an aside, one editor also wrote, “We really hope you’ll feel free to take the gloves off and speak your mind!” Let me quote from the movie *The Big Chill* (Nasatir, 1983) and say, “Be careful what you want for you may surely get it.”

Our Work Works

Over the past thirty years, there have been many studies comparing employment rates for postsecondary alumni with disabilities to other people with disabilities. One of these was done at Ball State (Markle, 2007). We replicated the Ball State study at the University of Michigan in 2009, though our findings were not published. These studies found that unemployment and underemployment among people with disabilities were significantly reduced when the person

had a postsecondary degree. In 2012, the U.S. Senate Committee on Health, Education, Labor and Pensions used Bureau of Labor Statistics data to note:

Post-secondary education directly translates into higher pay and lower unemployment. According to the BLS, in 2011 the median weekly earnings for a person with a high school diploma were \$610 per week compared to \$1,016 for a person with a bachelor’s degree (p.19).

These studies and others supporting the success of Disability Support Services (DSS) programs make it very paradoxical that, when the Americans with Disabilities Act of 1990 (ADA) was passed, many Vocational Rehabilitation (VR) Agencies cited the ADA and determined that they were no longer obligated to provide services such as interpreters for their clients who were enrolled at colleges and universities. One by one, State VR agencies, over protests by the Association on Higher Education And Disability (AHEAD) and others, divested themselves of the responsibility to provide support services by pointing to an irrelevant piece of legislation and ignoring three court rulings

that found them to be the “first payer” when a student was also a client (*U.S. v. University of Alabama*, 1990; *Jones v. Illinois Dept. Rehabilitation Services*, 1982; *Schornstein v. N. J. Div. Voc. Rehab*, 1981). VR agencies may not be the partner we once had, but students with disabilities who go on to higher education are more likely to be employed nonetheless. Stated more succinctly, “Our work works.”

Suicide is Painless...It Brings on Many Changes (Mandel & Altman, 1970)

The Department of Justice’s (DOJ) elimination of “danger to self” as a reason for requiring that a student leave a university to get treatment has proven worrisome (Grasgreen, 2011). Students who are now “protected” from dismissal have gone on to kill themselves (Grasgreen, 2014). We need to remember that we still have the option to remove a student based on how their behavior affects other students. I speak as someone who, as an undergraduate personal care attendant, had to clean up after a student I was working with had slit his wrists. In retrospect, that was a student we probably should have withdrawn, as his next attempt was successful. As an Assistant Dean of Students for a couple of years, I had many occasions to observe the devastating impact of a suicide on roommates and classmates. Even suicidal ideation can ruin a semester for the students who hear about it. This kind of disruption is an excellent reason to remove a student while they seek help. The elimination of “danger to self” was a severely misguided change. Fortunately, we do still have ways we can address these concerns by using the disruptive impact the behavior has on others.

Black Hawk Parents

We all have stories about Black Hawk parents. It is a very rare occurrence relative to the number of highly supportive parents, but they are nonetheless a challenge for us. I have seen parents pretend to be their son or daughter and send email to me and faculty from the student’s account. I actually have proof of this, as one parent pretending to be her son mistakenly signed her own name. I have had a parent move into a student’s apartment in order to coordinate the student’s life for him. I have seen a couple of these students graduate, but I question their ability to function effectively and independently within a work environment. *The Chronicle of Higher Education* reported that some universities are creating offices to serve parents (Galsky & Shotick, 2012). Other than Parking Operations, I can’t imagine a worse place to work.

In a slightly related matter, in one instance the Department of Education’s Office of Civil Rights (OCR) told a school to put less responsibility on a student to arrange their own support services. OCR seemed to equate our practice of requiring student involvement in setting up their support services to making voter registration difficult for African Americans: a sort of discrimination through bureaucracy. In reality, we have a commitment to student development that they do not always share. I think this confusion is exacerbated by the fact that much of the communication between OCR and ourselves is site visits and letters of finding. Paul Grossman, former Chief Regional Attorney for the U.S. Department of Education/Office of Civil Rights and now member of the Board of AHEAD, is the most obvious and welcome exception. I know that AHEAD also has plans to broaden communication between OCR and our profession. We need to be doing similar things to increase our communication with VR officials and K-12 special education personnel. The “silos” in which all four of these groups operate do not serve students well.

Why Can’t We All Just Get Along?

Recent OCR rulings seem designed, in part, to designate DSS as having the definitive last say in accommodation decisions (“Settlement Agreement,” 2012). This support is appreciated, and I suspect OCR personnel know full well that many DSS staff do not get the support they need from within their institutions. However, it is an indisputable fact that, in the matter of accommodations decisions, faculty also have an important role. At Southern Illinois University, I cannot presume to know what is essential to the education in each of the institution’s hundreds of degree-granting programs and several thousand different classes. It would be a rare DSS professional indeed who could claim such knowledge of his/her university’s curricula. The secret to making the faculty-DSS partnership work might be for us to stay with what we know and faculty to stay with what they know. But this seems to be difficult for both parties. All of us have heard of cases like *Guckenberger v. Boston University* (1997) where the President, a humanities instructor, wanted to see documentation for students with learning disabilities and we reciprocate by telling them how to design their classes using Universal Design. We must all tread carefully and with respect when advising others as to how they should do their work.

Getting Horton to Hear Us Whos

(Seuss, 1954)

As I noted previously, the OCR seems to be trying to empower us. Many of us have just about everything working against us and we desperately need the support. Studies have shown that many DSS professionals are young and new to the profession (Kasnitz, 2013). By and large, we enter this field to “do good,” not to stare down architects unwilling to put a ramp on a historic building. Most of us have bachelors and master’s degrees, not the Ph.D.’s held by the faculty to whom we must propose accommodations. The degrees we have are in fields such as counseling and teaching, not law and business, and we are disproportionately female. Faculty, on the other hand—and this is especially true in the sciences—are disproportionately male (National Center for Education Statistics, 2013). In this, the twenty-first Century, a sex-based power differential is abhorrent but it is nonetheless a reality. None of these things are insurmountable, but they do make our work more challenging. What is the solution to this dilemma?

I think AHEAD and others must make a concerted effort to both develop our members’ abilities to get things done and be effective agents for change on campuses. I believe the primary responsibility for this matter falls to AHEAD, in part because there are almost no degree programs to teach people to do the work that we do. I know that efforts are underway to try and get a handle on what kinds of training our members might find useful in this regard.

Pay It Forward

On a regular basis, I see people who seem to have been randomly assigned to DSS work or, as a colleague put it, “selected from among onlookers at a recent parade!” Through no fault of their own, they are writing to the listservs and clawing for information to resolve issues ranging from the most basic to the highly complex. Good informational publications exist but fall short of providing information helpful in resolving the more nuanced issues of the field, which is most of it. My editor challenged me to find examples of this. It wasn’t hard. Below is an email from DSSHE-L@LISTSERV.BUFFALO.EDU:

I received documentation that included results from a NeuroTrax Computerized Cognitive testing. I’ve never heard of this testing instrument before and am unsure of its relevancy. I tried searching on the Internet for additional information about

said testing and only found information from the company that created it. Has anyone been provided with this kind of testing and did you accept it? (Jackie S., 2014)

While many of us were given these responsibilities as an afterthought, those of us who were lucky were mentored by someone in the field. I once went out to lunch with my mentor, Ron Blosser, who was a pioneer in the field and the person for whom AHEAD’s “Blosser Award” was named. Ron picked up the check. When I protested, he told me to buy a meal for one of my student workers someday. Several years later, I bought dinner for Emily Singer Lucio and gave her the same instructions. She told me that she not only took her staff member to lunch but also employs her as a baby sitter. Emily further stated that this person is now an applicant for her own professional position. “Pay it forward,” everyone.

Our Cynophobia (abnormal fear of dogs)

Since the passage of the ADA Amendments Act (ADAAA) in 2008, the listservs used by our profession have been inundated with questions about service and support animals. Because we tend to over-focus on this area, I would like to share a successful strategy for dealing with service/support animal issues.

The psychologists and doctors who write less than believable notes to us stating that Spot is needed for Suzie’s mental health are far less likely to continue this charade if they have to explain it to a medical colleague. When you receive the rare questionable documentation advocating for the presence of a mental health tarantula, require the student to sign a release permitting their physician to speak to a physician at your health center. Such a conversation often produces different results from what they scribble on prescription pads for our consumption.

Disabilities Must Manifest Themselves as Something Actual

My father is retired faculty, and many years ago we coauthored some articles for JPED that focused on our respective disciplines and the emerging number of students with learning disabilities (Goodin & Goodin, 1988). In one of these articles, he wrote, “...disabilities must manifest themselves as something actual” (p. 16). It seemed simplistic to me at the time, but I now believe that *Bartlett v. New York State Board of Law Examiners* (1997) would not have gone in our favor had the judge not asked her to read aloud in the courtroom.

Marilyn Bartlett's less than fluent reading demonstrated that her learning disability (LD) manifested itself as something actual. In writing this essay, I asked Marilyn if I remembered the events correctly (we are friends on Facebook). She wrote back:

I do believe that [Judge] Sotomayor took into consideration that horrible day when she asked me to oral read. That added to my explanation of how I discern the difference between "b," "d," "p," and "q" (Look at them, they are indeed all the same letter. It is a matter of the position of the "circle" and the "line!"), the answer dawned on her and it was clear: I was using my intellectual power to cognitively figure out the letters, then acquired encoding skills in order to string together sentences, but all without automaticity (the ability to see the same word the same way twice).

So, based upon the totality of the evidence, Sotomayor decided I was substantially limited in the major life activity of reading and working. The big thing is that Sotomayor realized that such a decision needed "clinical observation." It would be impossible, just talking to me, to figure out that my disability was orthographically as well as phonologically based.

Have I said too much? Or have I confirmed your father's thinking?? (M. Bartlett, personal communication, April 24, 2014)

She obviously confirmed my father's thinking.

It is understandable that documentation standards for diagnosing LD were rigid thirty plus years ago because LD was essentially new to our field and we needed specific guidelines to follow. As we learned more about it over the years, we relaxed our documentation requirements. For example, many of us had three-year age limits on documentation. Looking back, that was a waste of time and resources for many students whose disabilities essentially would not change over time. Removing the three-year rule was a huge step in the right direction, as there is no need to keep retesting for what is a static condition. This move towards a less rigid approach continued with the ADAAA recommending the use of self-report as a means of updating old documentation. AHEAD's documentation guidelines (2012) are very helpful in making the transition to less reliance on documentation, as well. However, I feel that self-report by students or observations by teachers in high school or grade school should not be enough to diagnose LD. Initially, a full battery of achievement and aptitude tests should be used to diagnose LD. This testing

gives us so much insight into students' abilities. I'm fine with using Individualized Education Plan (IEP) updates or summaries of performance (SOP) after that, but initial testing should be done to establish the disability in the first place.

We have to be wary of requiring too little or no testing for diagnosis or we can lose credibility with faculty. We fought hard to show that support services for students with disabilities are not an unfair advantage and, if we become too lenient, we weaken that argument. In short, a disability must manifest itself as something actual.

Disability as a Weapon and Faculty as the Enemy

It worries me greatly that faculty at institutions that widely open their doors in an effort to admit all types of students are more frequently subjected to abusive behavior by students with disabilities who are adept at manipulating faculty to obtain better evaluations than they deserve. A faculty member once used the term "disability as a weapon" when describing such a student to me. The student was academically marginal and was known to threaten lawsuits repeatedly unless he won arguments about grades. As an example, I would point to *McInerney v. Rensselaer Polytechnic Institute* (2013). The student in question was described as "confrontational, aggressive, demanding, inflexible, belligerent, manipulative, and irrational." He eventually brought nine complaints of disability discrimination to a court and all nine were dismissed.

I have been told of instances in which faculty did give undeserved grades to students to avoid the antagonism described above. One day, this is going to backfire on us badly. Students' civil rights may not be denied, but there will be other repercussions. Will my faculty in the School of Architecture be willing to spend countless hours outside of class to make their field accessible to a blind student if they feel abused? Will my faculty member in Mathematics, excellent with students who almost seem to have dyscalculia, continue to appreciate the challenge of teaching them if he is afraid of a lawsuit?

I fear that OCR is in position to see many instances of problematic faculty and could accept, to some extent, the "faculty as the enemy" mentality. It is unfortunate that they have never met the faculty in my School of Architecture or my instructor in Mathematics.

There are, of course, faculty who blatantly refuse to provide what is clearly a reasonable accommodation. However, the few times I have encountered a faculty member who was outrageous in how he was treating a student with a disability, upon further inspection it

quickly became obvious that he was outrageous in other ways. These are not easy situations to deal with, but I do have some suggestions. Very early in the discussion, before positions become entrenched, contact the department chair. They are often able to resolve such problems in quiet and non-ego-threatening ways. I would not use the law as my first way to convince the faculty to make the accommodation. I would, however, use the Wiley legal database of disability related OCR cases and court rulings to find similar cases and share them with the department chair. The Wiley database is open to members of AHEAD and available via AHEAD's website.

Robotic Exoskeletons and Other Technology

Some of the most important advances in technology have resulted from repurposed technology. As an undergraduate employee in a wheelchair repair shop, my colleagues and I noted the development of the lightweight wheelchairs predominantly being used by athletes at that time. After we managed to get ahold of one, we made a few modifications to the foot pedals and then had a student with spina bifida sit in it. With one push, she traveled the full length of a hundred foot hallway. As she breezed past me, she said, "This must be what walking feels like."

High-speed document scanners have been around forever. When DSS programs began scanning documents, most of us had flatbed scanners that scanned one page at a time. I went to an office supply store looking for a faster flatbed scanner and was amazed upon seeing my first high speed sheet fed Canon DR-9050C. I could not believe these things were not being used by any DSS programs that I knew of. Recent examples of useful innovations include the Livescribe pen and the Ginger Grammar and Spell Checker.

Technology designed exclusively for people with disabilities has not always been as successful as those described earlier. Kurzweil 3000 is expensive compared to products you can get at Best Buy, which do roughly the same thing. JAWS is also quite expensive relative to the Apple IOS, which is accessible out of the box. Come to think of it, I have not met any paraplegics walking around in NASA robotic exoskeletons either.

In Conclusion...Caroling

I got into DSS for two reasons. One was the notion that improving one's mind could overcome whatever obstacles a disability might impose. The other was a moment that had occurred as an undergraduate, when I was asked to drive a bunch of DSS folks to the airport after an early DSS conference. It was winter, and they sang carols the whole way there. I sat up front, thinking that these were the people I wanted to hang out with. Despite some of the issues described above, these two convictions continue to guide and energize my commitment to the DSS field. I'm sure there will be many more changes in the field over the next thirty years, but I hope that whatever those changes bring, there will still be moments when we gather to sing carols and that a passion for helping our students overcome obstacles will still guide us.

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About the Author

Sam Goodin received his B.S. degree in psychology from Southern Illinois University (SIU) and M.S. also from Southern Illinois University. Sam worked in Specialized Student Services at Southern Illinois University throughout his undergraduate and graduate work. He went from there to a counseling position at the University of North Dakota's Disability Support Services Office. He then directed disability support services programs at Indiana University, California State University Los Angeles and the University of Michigan. He worked as an Assistant Dean of Students at the University of Michigan until returning to SIU to direct the Office of Disability Support Services.

Sam has been very active in the Association on Higher Education and Disability (AHEAD). He has numerous publications and conference presentations and served as the President of AHEAD. In 2003 he was awarded AHEAD's Ron Blosser Dedicated Service Award. This award is named after the person Sam reported to throughout his graduate and undergraduate work at SIU. Sam can be reached by email at sgoodin@siu.edu

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BOOK REVIEW

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Vance M. E., Lipsitz N. E., & Parks, K. (Eds.). (2014) *Beyond the Americans with Disabilities Act: Inclusive policy and practice for higher education*. Washington, D.C.: National Association of Student Personnel Administrations (NASPA), Inc., 222 pp., \$39.95 (hardback).

Beyond the Americans with Disabilities Act serves as an essential reference guide for student affairs administrators, faculty, and staff who work with individuals with disabilities. The book demonstrates how, over the past twenty-five years, disability services offices have been reframed by law, evolving academic models of disability, and best practices in student affairs. The publication's main premise focuses on shifting the focus from individual adjustments and accommodations to creating equitable and accessible learning experiences through universal design and partnerships with offices on and off campus. In this revised edition, editors Mary Lee Vance, Neal E. Lipsitz, and Kaela Parks stress that creating accessible environments for all students is first and foremost a shared responsibility among faculty, staff, and administrators across the entire campus. The editors also seek to show that the role of disability service providers has shifted from solely providing individual adjustments in the classroom to working collaboratively with campus entities to address the needs of the whole student.

This useful and insightful book is divided into four sections: The ADA and Changing Disability Pedagogy, Information and Communication Technology, Emerging and Growing Populations and their Impact on Higher Education, and Examples of Best Practices. Each of the four parts is divided into chapters that contain essays, case studies, and examples of best practices from 29 scholars and experts in their respective fields. Although each section or chapter of the book can stand alone, the themes set forth in the first section (i.e., changing legal mandates, cultural models of disability, and disability and universal design) are woven throughout subsequent chapters. The organization of the book flows logically from a description of legal mandates, universal design, and models of disability to specific examples of how to incorporate these ideas into practice

Part 1, *The ADA and Changing Disability Pedagogy*, addresses the fundamentals of disability law, models of disability in higher education, and universal design. These concepts are the legal and philosophical foundations on which disability services providers, faculty, and administrators approach their work and interactions with students with disabilities within the context of higher education. The editors point out that student affairs professionals often lack a strong understanding of these fundamental elements.

In the first chapter, Paul Grossman outlines key laws including Section 504 of the Rehabilitation Act of 1973, The Americans with Disabilities Act of 1990 (ADA), and the ADA Amendments Act of 2008 (ADAAA). These historical pieces of legislation require colleges and universities to provide equal access through academic adjustments and auxiliary aids and protect students with disabilities in higher education from discrimination. Grossman also discusses major developments that have occurred in the law since the inception of the ADA nearly twenty-five years ago. Some of these include a more inclusive definition of disability, regulatory changes to the definition of major life function, a designated class of impairments that will predictably meet the definition of disability, an individual's history of being regarded as having a disability, new standards for determining learning disabilities, service animals, and wheelchairs and other power-driven mobility devices.

In Chapter 2, Jean Ashmore and Devva Kasnitz discuss different models of disability theory and how they relate to practice. They point out that historically, disability services offices have operated under the medical model of disability and individual service. The growth of disability studies departments on many campuses brought about the idea of a cultural model of disability where disability is a contextual variable centered in the environment versus within the individual. The authors suggest that the role of disability service providers should move beyond simply provid-

ing accommodations and campus access to include reframing outdated concepts of disability and creating universally designed campus environments. In the final chapter, Sheryl Burgstahler offers a description of universal design in education where campus environments are created for a diverse range of learners including individuals with disabilities. Burgstahler offers checklists for implementing universal design principles for faculty to consider when developing courses and instructional materials for staff to use when designing student services programming. Burgstahler argues that this increases retention and self-advocacy among students and decreases the need for individual accommodations.

Part 2, Information and Communication Technology focuses on the importance of colleges and universities insisting that any new technology adopted by the campus be accessible to all students. In Chapter 4, Rachel Luna describes the trend in student affairs offices to use technology in interactions with students. According to Luna, using technology in this manner comes increases the danger of creating inaccessible environments. Luna reviews recent laws and litigation that are shaping the current technology landscape on campuses as well as self-assessment tools such as Project GOALS Gaining Online Accessibility through Self-Study and Web Content Accessibility Guidelines 2.0. Next, Gaeir Dietrich reviews institutional responsibility for considering the accessibility of technology on two levels. First, colleges and universities must create accessibility at the hardware and software level. Then the accessibility of course content and materials being accessed through the hardware and software must be evaluated for accessibility. Dietrich suggests partnering with faculty and staff and employing principals of universal design to ensure all students are able to engage with the course content without the need for individual adjustments.

Part 3, Emerging and Growing Populations and Their Impact on Higher Education examines the changing demographics on college campuses and policy implications triggered by these emerging populations. These include wounded warriors, postsecondary programs for people with intellectual disabilities, and students with hidden disabilities (i.e. learning disabilities, attention deficit disorder, psychiatric disorders, and autism spectrum disorders). This section focuses on specific programs and ways to better serve student populations often overlooked. Disability service providers are asked to find new and interesting ways to partner with entities on and off campus. In Chapter 6, John Mikelson offers specific data about the wounded warrior population and insights into challenges this

population faces when integrating into campus culture. There are ways to offer support through federal funding, appropriate referrals, and the creation of peer-mentoring programs.

In chapter 7, author Tom Thompson addresses programs for students with intellectual disabilities (ID), a population not typically served in higher education. With changing views about the need for higher education, many colleges and universities are choosing to offer certificate programs specifically geared towards students with intellectual disabilities. These programs can provide opportunities for individuals with ID to experience personal enrichment, vocational training opportunities, and opportunities to become informed citizens. This is an emerging population that traditionally has not had access to higher education. Access to further education will likely increase their earning potential and greater access to health care. Since many of these programs are new, the extent of the benefits these programs for students with ID remains uncertain.

Chapter 8 focuses on increasing support for students with hidden disabilities, a growing population that remains vulnerable without appropriate support. Due to a strong drive to fit into the campus community, this population may resist seeking help from appropriate campus resources. Obstacles these students may face include self-regulation, increased risk of substance abuse, ability to connect with social groups, using technology effectively, and developing work skills. Lorraine Wolf and Jane Thierfeld Brown point out how student affairs professionals can address these issues by creating structure and organization, rethinking activities such as ice-breakers and pairing students with mentors in work environments. Wolf and Brown also point to research showing that successful adults with learning disabilities tend to recognize and accept their disability. Disability service providers and student affairs professionals can assist with this process by helping students develop strong self-advocacy skills, set realistic goals, and build in the support to reach these goals.

Finally, Part 4, Examples of Best Practices, provides practical ways for disability service providers, faculty, and staff to go beyond compliance by partnering with other student affairs offices. In Chapter 9, Scott Frieman, Eileen Connell Berger, and Kaela Parks provide examples of how institutions with different organizational structures and campus climates have used partnerships and funding sources to develop programs that promote student engagement and positive learning outcomes. Innovative funding techniques such as service learning programs, internships, and resource sharing can be cost effective ways to solve complicated

problems and move the institution forward. This section also addresses the importance of collaboration throughout all units within student affairs to remove barriers, create a seamless experience, ensure equitable treatment, and provide opportunities for students with disabilities to engage in all aspects of campus life. These goals can be achieved by creating transition programs for high school students and partnering with career centers and employers, campus housing, the international students office, athletics department, study abroad offices, and student conduct. This section of the book also reflects on intersectionality and identity re-formation to help students with disabilities explore multiple identities and view disability as simply one facet of who they are as a student on campus.

As disability service providers begin to play an active role in the wider campus community, this book serves as an invaluable reference. In aiming to move past simply meeting mandated legal compliance to incorporate accessibility throughout campus, disability service providers must offer guidance and information to faculty, staff, and administrators. Although the information included in this book will probably be familiar to most disability service professionals, it is likely new to faculty and our colleagues in other departments within student affairs. This book offers a succinct description of important laws, concepts, and “best practices” for those unfamiliar with the legal mandates and challenges faced by disability services offices. It also lends important insight into the growing, diverse student population working with disability services offices and students with disabilities.

While disability service providers may not find much new information in this guide, it can be an important resource in our efforts to break down institutional barriers and foster equal opportunities for students. Most of the information presented by the editors and contributing authors centers around case studies, examples of programming, and individual stories. This type of qualitative reporting sets the stage for more substantive quantitative/empirical research to be done in the future. Although disability service providers may see a clear benefit to implementing accessibility across campus, tight budgets force administrators to make difficult decisions when allocating funds and resources. More quantitative data describing the benefits of universal design of instruction and increased classroom accessibility will help convince faculty to adapt their teaching practices. In addition to legal mandates, clear quantitative data will also lend support and guide colleges and university staff as they look for ways to make technology accessible and increase the usability of new technology. Perhaps the next edition

will include more attention to data from quantitative research to help strengthen the case for accessibility and the implementation of universal design and campus-wide accessibility.

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Britt Neff received her B.A. degree in American Studies from Smith College and M.Ed. in Student Development Administration from Seattle University. Her experience includes over 9 years working as a disability services professional in multiple academic settings. She is currently a Counselor Services Coordinator in the Disability Resources for Students Office at the University of Washington - Seattle Campus and serves as the Disability Knowledge Community Representative for NASPA Region V. Her research interests include identity development in students with disabilities, universal design of instruction and retention strategies for students with hidden disabilities. She can be reached by email at: neffb@uw.edu

Journal of Postsecondary Education and Disability

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- Manuscript length typically ranges between 25 and 35 pages including figures, tables, and references. Exceptions may be made depending upon topic and content.
- Include 3-5 keywords.
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