A Systematic Review of the Literature on Physically Disabled Students in Postsecondary Education: 2013-2021

Joseph Madaus[1]
Nicholas Gelbar[1]
Michael Faggella-Luby[2]
Lyman L. Dukes, III[3]
Shannon Langdon[1]

Abstract

While early literature in accessibility services in postsecondary education largely focused on physically disabled students, their presence in the peer-reviewed literature from 1951-2012 was described as sparse by Gelbar et al. (2015). The studies that existed were largely descriptive, and no studies investigated the effectiveness of accommodations or services for physically disabled students. The present study extends this prior analysis and examines the professional literature on physically disabled students published from 2013-2021. Results indicated there was an increase in articles during this time that featured physically disabled students in the overall sample, and of articles focused on this cohort specifically. There was also an increase in the number of articles based in countries outside of the United States, Canada, and Great Britain, as well as a rise in the number of articles featuring qualitative designs. However, there remains a minimal number of articles featuring research designs that allow the field of postsecondary education and disability to determine research-based practices in providing access to the population, as well as articles that focus on 2-year and career/technical institutions and on faculty and institutional staff. Implications for research and practice are presented.

Keywords: physical disability, orthopedic impairment, mobility impairment, systematic review, young adult, postsecondary education

The earliest publications addressing postsecondary education and disability focused on physically disabled students. For example, Atkinson's article "Students in Wheelchairs" about veterans attending the University of California at Los Angeles was published in *Phi Delta Kappan* in 1947. Articles during the subsequent 15 years described programs and supports for physically disabled students (e.g., Ayers, 1962; Berdie, 1955; Condon, 1951; Condon, 1957; Condon, 1962; Condon and Lerner, 1956; Lerner and Martin, 1955). These articles primarily focused on veterans, but also examined the experiences of other physically disabled postsecondary students. Articles provided detailed illustrations of collaborations with state rehabilitation agencies, described various programs, gave examples of common student accommodations, and discussed how institutions were delivering services to students. By 1962, postsecondary access of physically disabled students prompted Rusalem to assert:

> Physically handicapped college students requiring one or more special education services are no longer a rarity on the American campus. Having the same goals as other students, they are enrolling in increasing numbers, encouraged by better public and private school preparation, improved rehabilitation services, the availability of scholarship funds, and a changing attitude toward disabled persons in our society. (p. 161)

Rusalem (1962) also described themes related to postsecondary education access to the population including the preparation of students, attitudes of faculty members, and institutional physical plants. At the same time, Ayers (1962) commented on the need for

[1] University of Connecticut, [2] Texas Christian University, [3] University of South Florida

the field to learn more about the access needs of physically disabled students in a special report published in the journal *Rehabilitation Literature*, stating, "Except for those colleges and universities that have received wide recognition for their progress in accommodating wheel-chair and other handicapped students, little is known about the ability of most institutions to meet the needs of these students" (p. 282) .

Moving Beyond Access

While early publications described the growth in access and the challenges to provide equitable services for physically disabled students, the focus of the literature base shifted to other topics as well as subgroups of disabled students over the following fifty years. Gelbar et al. (2015) conducted an analysis of 1,036 articles about postsecondary education and disability published from 1951 to 2012. Of these articles, 59% (*n*=615) presented original data, but only 13% (*n*=81) included at least one physically disabled student. The majority of these focused on student experiences (*n*=55), followed by articles that presented profiles of students (*n*=19) and publications related to student access (*n*=18). The most common research methodology was descriptive-quantitative (*n*=38), followed by qualitative methods (*n*=30). Only two studies tested an intervention. Gelbar et al. (2015) noted that while the emergence of the postsecondary disability services field was initially driven by the needs of physically disabled students, a dearth of studies specifically addressed this group. Few studies explored the efficacy of existing programs and practices, and fewer still employed experimental or quasi-experimental research designs to investigate their effectiveness. Moreover, physically disabled students were included with heterogeneous samples of college students with disabilities throughout the research base with limited to no disaggregation of data (Gelbar et al., 2015).

Finally, Gelbar and colleagues (2015) noted that while physically disabled students are common on campus, they are uncommon in the literature in proportion to the percentage of postsecondary students with disabilities they represent. Such a finding, especially considering the lack of intervention studies, raises questions about how students are contending with structural, attitudinal, and individual barriers to postsecondary access and success (Gelbar et al., 2015).

Persistent Barriers

Although some studies demonstrate that physically disabled students are more likely to complete postsecondary education than students with hidden disabilities, they continue to experience significant barriers in their access to and completion of postsecondary education (Carroll et al., 2020; Kim & Williams, 2012; Pingry O'Neill et al., 2012). These barriers include difficulties with accessibility and self-perceptions about their own abilities. A systematic literature review conducted by Fernández-Batanero et al. (2022), found that students with disabilities primarily had barriers in accessing the university specifically due to the university's architecture or infrastructure. Another study conducted by Soorenian (2013) examined housing and transportation issues for British students with disabilities, including twelve students that had physical or mobility disabilities. Findings showed that youth with physical and sensory disabilities faced barriers in obtaining accessible housing as well as an inability to access all parts of their residence. It was also reported students had difficulties using public transportation. Challenges included being able to get onto the mode of transportation, having a place for their wheelchair, or finding a place to sit (Soorenian, 2013).

Current Study

Physically disabled students may experience barriers accessing postsecondary education, including instructional access challenges. As Gelbar et al. (2015) reported, these students are minimally represented in the professional literature published up to 2012, with only two studies testing an intervention. Peer review publications have the potential to impact professional development and practices; thus, it is imperative we understand the current state of the professional literature specific to students with physical disabilities (McFarland et al., 2013; Peña, 2014). The dearth of literature on physically disabled students results in a lack of clarity when describing "the *who is*, or *what is* of college students with physical disabilities," and even more problematically, an inability to "address the *what works* question with regard to effective programs and support for students with physical disabilities" (Gelbar et al., 2015, p. 25). Thus, the purpose of this study is to update the Gelbar et al. (2015) review and examine the characteristics of the literature on physically disabled students from 2013-2021 including articles on practices and experiences of physically disabled college students. The following questions guided the investigation:

1. What are the characteristics of the professional literature (e.g., topical areas, sample and methodology descriptions, evidence of research-based practices, etc.) related to postsecondary education and disability for physically disabled students from 2013-2021?

2. What evidence exists in the literature to support research-based practices in accessibility services for physically disabled college students?

Methodology

A systematic review based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards (Moher et al., 2009) was conducted to address the research questions. These standards represent the industry guidance for procedures to conducting systematic reviews that minimize potential bias. We previously conducted a comprehensive systematic review of the literature on disability-relevant topics in higher education (Madaus et al., 2018) from 1951-2012. As part of the previous project, the literature on physical disabilities and higher education was analyzed (Gelbar et al., 2015); thus, the present examination sought to update the prior review by summarizing publications from 2013-2021. The current analysis is part of a larger project in which the entire corpus of literature regarding disability-relevant topics in higher education from 2013-2022 is being reviewed.

Boolean Search

The first step of the study was to conduct a search in the ERIC, Academic Search Premier, PsycInfo, and Medline databases of peer-reviewed articles published in English between 2013 and 2021. The Boolean search terms were identical to the previous study and were as follows: ("college student" or "university student" or "postsecondary education" or "college admission" or "higher education" or "student affairs" or "student services" or "student personnel") AND ("disabilit*" or "hearing impair*" or "deaf" or "disabled" or "handicap" or "ADHD" or "ADD" or "dyslex*" or "blind" or "disabilities" or "accommodation" or "mental illness" or "mobility impairment" or "visual impair*"). In addition, all articles published in the *Journal of Postsecondary Education and Disability (JPED*) were included. This search and the *JPED* publications resulted in 13,254 articles for examination. After duplicates, non-peer-reviewed publications, and articles not published in English were removed, 12,046 remained and were analyzed as part of the title and abstract review process.

Title and Abstract Review

During the title and abstract step, two members of the research team reviewed the titles and abstracts of each article independently to determine if they met the study's inclusion criteria. In addition to being published in English in a peer-reviewed journal from 2013-2021, the article had to be about postsecondary education for disabled students. It is important to note that during the previous systematic review, inclusive postsecondary education programs for individuals with intellectual and developmental disabilities were not included as the refereed literature on the topic was nascent. For the present review, they were included. Table 1 depicts how the definition of postsecondary education for students with disabilities was operationalized for the study. The interrater reliability during the title and abstract coding was 86.9% and a third member of the research team resolved all disagreements.

Full Text Review and Coding

A total of 2,433 articles remained following the title and abstract review. The articles were collected, and each was assigned a unique code. A coding form based on the previous systematic review project was developed and completed using Qualtrics. The first coding question asked whether the article met study inclusion criteria. The remainder of the coding document included information regarding whether the publication included original data, the research type, and demographic information about the sample. If the article was not data-based, the type of article was coded as literature review, program description, or metanalysis/systematic review. The topics of all articles were coded based on a revised taxonomy the team had previously developed (Dukes et al., 2017) and grouped into four categories: (a) Student-based studies, (b) accessibility program/institutional studies, (c) faculty studies, and (d) professional (non-accessibility services) staff studies. The coding tool is available on request from the first author. Due to the breadth of publications for review, 26.6% of the articles were double coded resulting in 82.2% reliability as to whether the articles met inclusion criteria and 94.4% reliability on the remainder of the coding items. The coding tool also included a question regarding whether the article focused on physically disabled students or included these students as a part of a broader sample.

Results

In total, 302 articles contained physically disabled students as part of their sample and were published in a total of 152 different journals (see Table 2 for the most common publication outlets). We also included a coding item to determine which of these articles were primarily focused on physically disabled students (e.g., as mentioned in the article title, research questions, study rationale, and/or the sam-

Table 1

Operational Definition of Postsecondary Education for Students with Disabilities

- Programs for accepted students into degree-granting programs at a 2 or 4-year college or university, but not yet matriculated;
- Programs for students in non-degree-granting programs at a 2- or 4-year college or university (including programs for students with ID and/or DD);
- Experiences of credit-earning students with disabilities in 2- or 4-year college or universities;
- Articles about the experiences of students with disabilities who have dropped out of degree-granting programs at a 2- or 4-year college or university or have dropped out of a non-degree granting program;
- Articles about the experiences of students with disabilities who are graduates of degree-granting programs at a 2- or 4-year college or university;
- Articles about support programs and/or services for college/university students with disabilities in any of the above categories;
- Articles about instructional methods related to college/university students with disabilities in any of the above categories;
- Articles about measures, concepts, theoretical frameworks etc. related to postsecondary education and disability services.

Table 2

Number of Articles About Physical Disabilities by Journal (Journals with 4 or More Articles)

Journal	***N***
Journal of Postsecondary Education and Disability	39
Disability & Society	15
International Journal of Disability, Development and Education	9
Disability and Rehabilitation: Assistive Technology	8
International Journal of Inclusive Education	8
Journal of College Student Development	6
African Journal of Disability	5
Career Development and Transition for Exceptional Individuals	5
Disability and Health Journal	5
Journal of Vocational Rehabilitation	5
Scandinavian Journal of Disability Research	5
Studies in Higher Education	5
International Journal of Environmental Research and Public Health	4
International Journal of Special Education	4
Journal of Diversity in Higher Education	4
Rehabilitation Counseling Bulletin	4
Rehabilitation Psychology	4

ple). Of the 302 articles, 18.2% (*n*=55) were primarily about physically disabled students. What follows is a breakdown of results for both the broader article set and for articles focused specifically on physically disabled students.

Students in the Broad Sample

Methods used. The vast majority (94%) of the broader set of articles that included physically disabled students in the sample were data-based articles. There was nearly an even distribution of publications that used qualitative methods (*n*=127) and quantitative methods (*n*=115), followed by mixed methods designs (*n*=28), and studies that compared one or more groups (*n*=10). Of these, only two employed a specific intervention with a treatment and comparison group (Polo Sánchez & López Justicia, 2016; Saletta et al., 2019). The article by Saletta et al. (2019) focused on teaching reading comprehension to a sample of students with intellectual disabilities, four of whom also were physically disabled. The study by Polo Sánchez and López Justicia (2016) focused on training a group of students (four of whom were physically disabled) on employment search strategies. An additional four articles featured single subject designs (*n*=1) or were focused on the development of a psychometric instrument (*n*=3). Of the non-data-based articles (*n*=17), 16 were program descriptions or literature reviews, and one was a systematic review of the literature.

Topics and locations. The articles primarily focused on student-level studies (92%; *n*=277), followed by articles exploring topics at the institutional/program level (*n*=16), faculty (*n*=5), and institutional professional staff (*n*=3). Most of the articles (*n*=123) were based in the United States, followed closely by other international locations (*n*=121; see Table 3 for a full list), Spain (*n*=28), Great Britain (*n*=22), and Canada (*n*=17). Because of the scope of international articles and the variation from country to country regarding the structure of postsecondary education, the institutional type was primarily coded as "other" (*n*=166). This was followed by 4-year institutions (*n*=110), 2-year institutions (*n*=15), studies in which the setting was not clearly specified (*n*=8), and career/technical institutions (*n*=3).

Participants. Ninety three percent (*n*=280) of the articles included disabled students in the sample. There was a near bimodal distribution of publications featuring samples of less than 50 students (*n*=150) and those with more than 50 students (*n*=130). Eighty seven percent of the articles clearly described disability types in the samples, 69% clearly described the gender of the sample, 33% clearly described student academic level/class standing, and 24% clearly described the sample race/ethnicity. Of the 71 studies that featured non-disabled student participants, most were students without disabilities (*n*=42), followed by professional staff (non-accessibility services; *n*=14); faculty (*n*=12), accessibility services staff (*n*=10), administrators (*n*=3), and parents/family (*n*=2).

Physically Disabled Students as Primary Focus

Methods used. As noted, 55 articles focused primarily on physically disabled students. Of these 86% (*n*=47) were data-based. These were mostly qualitative in design (*n*=27), followed by mixed methods designs (*n*=11) and quantitative designs (*n*=8). Of the eight non-data-based publications, seven were literature reviews or program descriptions, and one was a systematic review. None of the articles utilized a group intervention.

Topics and locations. The vast majority (90%) of the articles were student-level studies, followed by studies about institutions/programs (*n*=5) and studies about faculty (*n*=3). No studies focused on professional staff. Most articles (*n*=21) were from "other" international locations (Table 3), followed by the United States (*n*=18), Canada and Great Britain (*n*=4 each). Like the broader study set, most publications specific to physically disabled students were from "other" types of postsecondary institutions (*n*=29), followed by 4-year institutions (*n*=17), and 2-year institutions (*n*=2). There were no articles featuring career/technical schools.

Given this special issue's focus on career, we also coded for articles that were solely about career development and transition for disabled college students. Three articles fit this classification that focused on physically disabled students. Berry and Domene (2015) conducted semi-structured interviews with 15 students with a "permanent mobility or sensory impairment" (p. 78). Student perceptions were gathered related to the most effective supports in helping them meet their career goals. Collins et al. (2019) presented the results of interviews with 40 students and staff related to embedding employment skills development into college teaching and learning. The student participants (*n*=11) were physically disabled. Finally, DiYenno et al. (2019) presented a qualitative study regarding the perceptions of five students with physical disabilities who participated in a career focused summer internship program.

Participants. Once again, most of the articles focused on disabled students in the sample (87%; *n*=45). The sample sizes tended to be less than 50 students (*n*=37) versus more than 50 students (*n*=7). Eighty five percent clearly described the disabilities in the sample, as did 63% regarding the gender of the

Table 3

International Locations of the Articles

Country	***N***
United States	123
Spain	28
Great Britain	22
Canada	17
Australia	11
South Africa	11
India	6
Jordan	6
Taiwan	6
Ireland	5
Israel	4
Malaysia	4
Belgium	3
China	2
Croatia	2
Czech Republic	2
Ethiopia	2
Germany	2
Ghana	2
Italy	2
Lesotho	2
Norway	2
Sweden	2
Zimbabwe	2
Brazil	1
Cyprus	1
East Africa	1
Greece	1
Indonesia	1
Japan	1
Kazakhstan	1
Netherlands	1
Nigeria	1
Oman	1
Pakistan	1
Palestine	1
Qatar	1
Russia	1

(Table 3, continued)

Country	*N*
Slovenia	1
Tanzania	1
Yemen	1

sample. Only 23% described the class standing of the participants, and only 17% clearly described the race/ethnicity of the sample. There were 11 studies that contained sample members other than physically disabled students, including students without disabilities (*n*=5), followed by institutional staff (non-accessibility services; *n*=4), faculty and accessibility services staff (*n*=2 each).

Discussion

The current investigation examined the literature corpus related to physically disabled students in postsecondary education in the 10-year time frame of 2013-2021, and expands the analysis of Gelbar et al. (2015), which conducted an identical review spanning the years 1951 to 2012. One of the most significant findings was the nearly four-fold increase (from 81 to 302) in the total number of articles featuring physically disabled students in the sample published in the past decade. Encouragingly, 55 of the publications focused primarily on physically disabled students. This is a positive development given the relative dearth of articles on this cohort.

A related development was the increase in the number of articles published in countries other than the United States, Canada, and Great Britain, which were the primary settings of the articles published from 1951 to 2012 (Gelbar et at., 2015). In fact, articles from international settings were the second most common and represented 38 unique nations (see Table 3). It may be the case that postsecondary access for disabled students is relatively new in many of these nations, and physical disabilities are an initial focus of these efforts due to their more visible nature, much like the early literature on postsecondary education and disability in the United States. Future investigations should continue to monitor these developments and the efficacy of efforts to increase access for physically disabled students.

The data also revealed most of the articles published in the United States tended to be based at 4-year institutions (*n*=110), with far fewer at 2-year institutions (*n*=15) and career technical institutions. This gap was even more apparent when examining the set of articles primarily focused on physically disabled students, as only two were based at 2-year institutions and none from career/technical institutions. The most current data on postsecondary enrollment of physically disabled students indicate that 31% enroll in a public or private 2-year institution after completing high school, compared to 28% who enroll in public 4-year schools and 12% who enroll in private 4-year schools (Hinz et al., 2017). It is also important to note that physically disabled individuals complete associate degrees or have some college (32%) at higher rates than those who complete a bachelor's degree or higher (12.9%; Yang Tan Institute on Employment and Disability, 2022). Therefore, this lack of research in 2-year and career/technical programs results in a gap in our current knowledge of the experiences of a large group of physically disabled students.

An additional gap identified in these data is the small number of studies focused on non-accessibility services, institutional staff, faculty, and accessibility staff in the broader studies, with even less in the studies specific to physically disabled students. Specifically, only four articles featured institutional staff, while only two featured faculty or accessibility services staff. Each of these groups directly impact the physical and instructional access and experiences of students. The knowledge, skills, and attitudes of each group related to access for physically disabled students remains relatively unknown.

Also worthy of note is the large number of qualitative studies including students with physical disabilities published during the past decade (Broad sample: *n*=127, Primary sample: *n*=27). The use of a wide range of study methodologies lends depth to our understanding of the experiences of disabled students (Skrtic, 1995) and provides a context for the development of both novel theories and interventions (Faggella-Luby et al., 2014). Qualitative analysis provides the opportunity to examine the how and why of the student experience in context. That is, it has the potential to uncover what works for a specific population including, importantly, when, where, how, and why. Moreover, as Faggella-Luby et al. (2014) noted, quali-

tative design "…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" (p. 365).

However, regarding answering Research Question 2, there appears to be little progress in better describing and providing evidence for research-based practices for this student population, like the Gelbar et al. (2015) findings. While overall there are more data-based studies that included physically disabled students, almost all included students with other disabilities with limited disaggregation of physically disabled students (more below). One metric for determining research-based practices within a field is to examine peer-reviewed publications that contained groups of students with disabilities as participants. Within the scope of our research on physically disabled students were 10 studies that included group comparisons and one additional study that used a single-case design to examine differences across participants. As noted, eight of the 10 studies examined inter- or intra-differences between groups of students using descriptive research designs. These largely domestic studies explored differences such as course completion rates (Richardson, 2014), mental health (Scherer et al., 2016), choosing a major (Groah et al., 2017), prevalence in pre-service teacher education (Keane et al., 2018), experiences requesting accommodations in a clinical simulation (Freedman et al., 2020) or learning management system (Maboe et al., 2020), self-reported rates of illicit drug use (Casseus et al., 2021), and rates of physical activity over a three-year period (Pans et al., 2021). Within these eight studies, the larger participant population of individuals with disabilities included a subset of physically disabled individuals, ranging from less than 10 to more than 4,000 (e.g., Richardson, 2014). However, only two studies (Richardson, 2014 and Scherer et al., 2016) disaggregated findings related to physically disabled students.

Of the two remaining studies including groups of physically disabled students, Polo Sánchez and López Justicia (2016) provided a training program on employment search strategies to 10 postsecondary students, including four with physical disabilities. This international study (Spain) also included 10 control students, also including four with physical disabilities. Results indicated increased rates in academic/labor self-concept, and more knowledge of next steps in the search process in the experimental group. Additionally, four students in the experimental job received employment prior to the conclusion of the study involvement. Unfortunately, study results were not disaggregated related to physically disabled students.

In the lone U.S. based group study, Saletta and colleagues (2019) included fewer than 10 physically disabled students as comorbid conditions of a larger population of individuals with intellectual disabilities. This reading intervention study attempted to improve participant reading comprehension by adding illustrations (i.e., visuals) to accompany text. Though results were again not disaggregated, there were no differences between groups. Moreover, this study lacked content validity given the majority of postsecondary reading texts, and was not consistent with research on Structured Literacy (e.g., Spear-Swerling, 2022) for students with disabilities.

Finally, in the lone single-subject design study, Rodgers and colleagues (2021) examined the effects of a text-writing fluency intervention with four postsecondary students with intellectual disabilities (ID) using a multiple-baseline across subjects design. One of the study participants had a comorbid diagnosis of Cerebral Palsy (CP) and Attention Deficit Hyperactivity Disorder (ADHD). Though study results are reported as mixed, because of the nature of reporting multiple-baseline across participants data, it is possible through visual analysis to see that though the participant with ID/CP/ADHD increased in correct writing sequences across phases, there was also a rising trend in number of incorrect writing sequences and variable performance on maintenance measures with only 33% non-overlapping data in comparison to baseline on sentence construction probes. He was the only student in the study to not improve his speed in sentence-writing, the target skill for the intervention. However, he did demonstrate improvement on correct writing sequences for descriptive paragraph probes from pre-test to post-test.

While we applaud the significant growth in the number of publications including physically disabled students, we remain troubled regarding the lack of research designed to determine what institutional programs and practices are effective for the population. The lack of findings may well constrain the ability of higher education personnel to support student success during and following the college experience. We believe it is reasonable to surmise that our analysis has likely resulted in more questions than answers.

Limitations

While our goal was to provide a comprehensive overview of the literature related to physically disabled individuals, this synthesis does have some notable limitations that are inherent in the review process. First, the literature we reviewed may be limited in scope. We made every effort to cover the full range

of existing literature on postsecondary education for physically disabled individuals by referencing peer-reviewed articles. Additionally, recognizing that each database has unique coverage, we used multiple search engines across three different universities to broaden the scope of our review. However, our review faces two key limitations. First, there is the issue of publication bias. We primarily relied on published works in English, which might introduce bias due to a preference for positive or significant findings. Additionally, we did not include "gray literature" or dissertations in our review. Despite these limitations, we believe our search process was appropriate for our goal: to inform both the scholarly and practitioner communities about the state of postsecondary education for physically disabled individuals and to offer insights on improving services and removing barriers.

Additionally, we attempted to avoid bias by allowing for heterogeneity of research study designs, including a variety of research methodologies. Third, we are beholden to participant descriptions and selection in the literature which may introduce unintended threat to external validity as the samples may not always be representative of the target population of interest. This is particularly relevant given our desire to not limit the geographical scope of the study to avoid Western bias. That said, physical disability is determined with variation across international boundaries.

Finally, we acknowledge that despite our best efforts to provide a comprehensive review of the literature, it is entirely possible that due to limitations in search terms, database selection, or search filters we may have missed individual articles. To mitigate this risk during the discovery process, each article was double coded, with disagreements resulting in coding by a third member of the research team to ensure accuracy in the article selection process from among the corpus of articles available.

Implications For Practice and Future Research

Implications for Practitioners

The field of Accessibility Services continues to evolve, as does the higher education student population as well as the postsecondary education and disability literature corpus. Thus, it is imperative the profession consistently reflect upon its practices. The Association on Higher Education and Disability (AHEAD) has recently significantly revised its foundational documents including the organization's *Program Domains, Standards, and Performance Indicators*. The Introduction to the revised document states, "…the overarching goal of disability resources is the mitigation of barriers to access for disabled individuals in all institutional programs, services, and activities (AHEAD, 2021, np). In fact, Domain 1, titled "Leadership and Collaboration" notes, "Disability resource professionals provide institutional leadership in advancing the equal participation of disabled people through a *collaborative process*" (emphasis added) (AHEAD, 2021, np).

Given the seemingly ever-expanding expectations of AS professionals, collaboration should be considered an imperative. At the 2023 Postsecondary Disability Training Institute (PTI), McCarthy (2023) facilitated a session on the establishment of a President's Advisory Committee (PAC). This recently established committee at the University of South Florida, which includes approximately 25 personnel across both academic and student services, at its core has a focus on accessibility achieved through collaboration. Physically disabled students have been part of the ongoing conversation of the Committee and reflected in several committee actions. First, the Committee partnered with the institution's Center for Innovative Teaching and Learning to promote the use of accessibility and universal design for learning pedagogical practices. Next, it facilitated a "faculty learning group" focused on the text *Academic Ableism* (Dolmage, 2017). The PAC has plans to establish quarterly meetings with campus physical plant leadership to address physical access improvement across campus. Each of these initiatives (and others in which the PAC is engaged) may have a positive impact upon the experiences and outcomes of physically disabled students on campus.

Campus career services centers also stand out as an especially important campus partner. Student success, both during and following college, has become a commonly employed metric and goal for higher education. In fact, some states (e.g., Florida) utilize performance-based metrics tied to annual budget appropriations for institutions that include evaluation of the percentage of graduates employed and at what salary rates. These evaluative metrics include disabled students; thus, there is every reason to promote the pre- and post-graduate needs of this cohort with campus partners including career services. Consider, for example, that the literature corpus over the past decade does not reflect any studies or reports on campus professional staff. We know very little, from a literature-based perspective, on the beliefs, attitudes, and practices of these professionals who are likely working with students on a daily basis. It stands to reason that AS professionals should consider strategies for assessing and supporting personnel, such as campus career services, when reflecting upon the post-graduate goals of an institution's disabled students, including those with physical disabilities.

Implications for Research & Practice

Clearly, the existing literature concerning postsecondary education for physically disabled students is replete with gaps in the existing knowledge and research. For example, while barriers to access have been consistently examined, the limited number of research articles in total allows that even this most consistently explored topic is limited. Moreover, future research should investigate moving beyond access to include improvements in the process and outcomes for physically disabled students. For example, interventions related to academics, social-emotional well-being, mental health, and other identified barriers are warranted. In addition, the employment outcomes and other post-college experiences should be examined as well. Regrettably, a primary research question related to synthesizing the research-based practices remains unanswered due to the limited number of empirical studies as well as lack of disaggregated data regarding physically disabled students. To guide educators and policymaker decision making, significantly more research is necessary. Shaw and Dukes (2013) highlighted this need more than a decade ago. Forward movement may occur with specific federal funding through mechanisms such as the Institute for Education Sciences (IES), but also through federal agencies like National Institutes for Health and Veterans Affairs. Historically, increased funding has served as a catalyst in the research community to accelerate knowledge production for targeted populations. Practically, disability service staff engage and problem solve for physically disabled students on a daily basis. For example, they are in communication with admissions, housing, student affairs, and academic units. To capture applied lessons learned, surface critical research questions, and design robust and meaningful studies, it is necessary to partner with research faculty and research centers across the country to publish results with desegregated data for physically disabled students.

These implications and recommendations for future research highlight critical next steps in addressing the postsecondary education of physically disabled students. Further, by addressing these research gaps, as in previous research concerning students with disabilities, scholars may contribute to improvements in inclusive education and equitable opportunities for other students.

Conclusion

Research concerning physically disabled individuals in postsecondary education has examined access, participation, and overall educational experiences. Scholars have investigated variables such as accommodations, assistive technology, campus accessibility, university policies, and other support systems. Limited findings suggest the importance of addressing inclusive practices, proactive environmental solutions, and necessary adaptations to promote a more inclusive and equitable environment. While some progress has been made over the last half-century, significant future work is necessary to address the remaining roadblocks to improved academic experiences and outcomes for physically disabled individuals.

References
*Indicates an article in the analysis

Association on Higher Education and Disability. (2021). *Program domains, standards, and performance indicators.* www.ahead.org/professional -resources/information-services-portal/data-collection-and-management/performance-indicators

Atkinson, B. H. (1947). Students in wheelchairs. *The Phi Delta Kappan, 29*(7), 295–297.

Ayers, R. E. (1962). Accommodations for wheelchair students at institutions of higher learning. *Rehabilitation Literature, 23*(9), 282–285.

Berdie, R. F. (1955). Counseling for physically disabled students. *The Journal of Higher Education, 26*(9), 475–478. doi.org/10.1177/2165143413490792

Carroll, J. M., Pattison, E., Muller, C., & Sutton, A. (2020). Barriers to bachelor's degree completion among college students with a disability. *Sociological Perspectives, 63*(5), 809–832.

*Casseus, M., West, B., Grabder, J. M. Wackowski, O., Cooney, J. M., & Lee, H. S. (2021). Disparitites in illicit drug use and disability status among a national representative sample of U.S. college students. *Disability and Health Journal, 14*(1). https://doi.org/10.1016/j.dhjo.2020.100949

*Collins, A., Azmat, F., & Rentschler, R. (2019). "Bringing everyone on the same journey:" Revisiting inclusion in higher education. *Studies in Higher Education, 44*(8), 1475–1487. https://doi.org/10.1080/03075079.2018.1450852

Condon, M. E. (1951). This college concentrates on helping the handicapped student. *Journal of Rehabilitation, 17*(3), 14–16.

Condon, M. E. (1957). A survey of special facilities for the physically handicapped in the colleges. *Personnel and Guidance Journal, 35*(9), 579–583.

Condon, M. E. (1962). The facilitation of the education of the physically disabled college student. *Rehabilitation Literature, 23*(9), 266–274.

Condon, M. E., & Lerner, R. S. (1956). Program adjustments for the physically handicapped at the college level. *Personnel and Guidance Journal, 35*(1), 41–42.

*DiYenno, C., Mulvihill, T., Wessel, R. D., & Markle, L. (2019). Experiences of students with physical disabilities in a summer internship program. *Journal of Postsecondary Education and Disability, 32*(2), 147–157.

Dolmage, J. T. (2017). *Academic ableism: Disability and higher education.* University of Michigan Press.

Dukes, L. L., III., Madaus, J. W., Faggella-Luby, M., Lombardi, A., & Gelbar, N. (2017). PASSing College: A taxonomy for students with disabilities in postsecondary education. *Journal of Postsecondary Education and Disability, 30*(2), 111–122.

Faggella-Luby, M., Lombardi, A., Lalor, A. & Dukes III, L. L. (2014). Methodological trends in disability and higher education research: Historical analysis of the Journal of Postsecondary Education and Disability. *Journal of Postsecondary Education and Disability. 27*(4), 357–368.

Fernández-Batanero, J. M., Montenegro-Rueda, M., & Fernández-Cerero, J. (2022). Access and participation of students with disabilities: The challenge for higher education. *International Journal of Environmental Research and Public Health, 19*(19), 11918.

*Freedman, J. E., Woodfield, C. L., & Dotger, B. H. (2020). Using simulated meetings to practice advocating for disability-related accommodations (Practice Brief). *Journal of Postsecondary Education and Disability. 33*(4), 387–394.

Gelbar, N. W., Madaus, J. W., Lombardi, A., Faggella-Luby, M., & Dukes III, L. L. (2015). College students with physical disabilities: Common on campus, uncommon in the literature. *Physical Disabilities: Education and Related Services, 34*(2), 14–31.

*Groah, C. H., Getzel, E. E., Rachael, C., Graham, C. W., Russell, C. E., & Walker, A. (2017). Perceptions of GI Bill recipients with disabilities of Science, Technology, Engineering, and Math (STEM) as a viable career choice. *Journal of Vocational Rehabilitation, 47*(4), 109–117. https://doi.org/10.3233/JVR-170887

Hinz, S. E., Arbeit, C. A., & Bentz, A. (2017). *Characteristics and outcomes of undergraduates with disabilities*. U.S. Department of Education, NCES 2018-432.

*Keane, E., Heinz, M., & Eaton, P. (2018). Fit(ness) to teach? Disability and initial teacher education in the Republic of Ireland. *International Journal of Inclusive Education, 22*(8), 819–838. https://doi.org/10.1080/13603116.2017.1412510

Kim, M. M., & Williams, B. C. (2012). Lived employment experiences of college students and graduates with physical disabilities in the United States. *Disability & Society, 27*(6), 837–852. https://doi.org/10.1080/09687599.2012.673081

Lerner, R. S., & Martin, M. (1955). What happens to the college student with a physical handicap? *Personnel and Guidance Journal, 34(*2), 80–85.

*Maboe, M. J. (2020). Comparisons of students using electronic learning website of the University of South Africa. *International Journal of Virtual and Personal Learning Environments, 10*(1), 24–25.

Madaus, J. W., Gelbar, N. W., Dukes, L. L., Lalor, A. R., Lombardi, A., Kowitt, J., & Faggella-Luby, M. (2018). Literature on postsecondary disability services: A call for research guidelines. *Journal of Diversity in Higher Education, 11*(2), 133–145. https://doi.org/10.1037/dhe0000045.

McCarthy, D. (2023, May). *Creating a presidential advisory committee for accessibility*. Pre-Institute Presentation at the 33rd Annual Postsecondary Disability Training Institute, Boston, MA.

McFarland, L., Williams, J., & Miciak, J. (2013). Ten years of research: A systematic review of three referred LD journals. *Learning Disabilities Research and Practice, 28*(2), 60–69.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G., The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLOS Medicine, 6*(7), Article e1000097. doi. org/10.1371/journal.pmed. 1000097.

*Pans, M., Úbeda-Colomer, Monforte, J., & Devís-Devís, J. (2021). Physical activity and accomplishment of recommendations in university students with disabilities: A longitudinal study. *International Journal of Environmental Health and Public Health, 18*, 5540. https://doi.org/10.3390/ijerph18115540

Peña, E. V. (2014). Marginalization of published scholarship on students with disabilities in higher education journals. *Journal of College Student Development, 55*(1), 30–40.

Pingry O'Neill, L. N., Markward, M. J., & French, J. P. (2012). Predictors of graduation among college students with disabilities. *Journal of Postsecondary Education and Disability, 25*(1), 21–36.

*Polo Sánchez, M. T., & López Justicia, M. D. (2016). Transition to employment of university students with disabilities: Factors for success. *Universitas Psychologica, 15*(2), 273–286. doi.org/10.11144/Javerina.upsy15-2.

*Richardson, J. T. E. (2014). Academic attainment of students with disabilities in distance education. *Journal of Postsecondary Education and Disability, 27*(3), 291–305.

*Rodgers, D. B., Datchuk, S. M., & Rila, A. L. (2021). Effects of text-writing fluency intervention for postsecondary students with intellectual and developmental disabilities. *Exceptionality, 29*(4), 310–325. https://doi.org/10.1080/09362835.2020.1850451

Rusalem, H. (1962). The physically handicapped student and the college faculty. *College and University, 32*(2), 161–167.

*Saletta, M., Kaldenberg, E., Rivera, K., & Wood, A. (2019). Do illustrations promote reading comprehension in adults with intellectual or developmental disabilities? *Education and Training in Autism and Developmental Disabilities, 54*(3), 22.

*Scherer, H. L., Synder, J. A., & Fisher, B. S. (2016). Intimate partner victimization among college students with and without disabilities: Prelevence of and relationship to emotional well-being. *Journal of Interpersonal Violence, 31*(1), 49–80. https://doi.org/10.1177/0886260514555126

Shaw, S. F., & Dukes III, L. L. (2013). Transition to postsecondary education: A call for evidence-based practice. *Career Development and Transition for Exceptional Individuals, 36*(1), 51–57.

Skrtic, T. (1995). Power/knowledge and pragmatism: A postmodern view of the professions. In T. Skrtic (Ed), *Disability and democracy: Reconstructing (special) education for postmodernity* (25–62). Teachers College Press.

Soorenian, A. (2013). Housing and transport: Access issues for disabled international students in British universities. *Disability & Society, 28*(8), 1118–1131. doi.org/10.1080/09687599.2012.758033.

Spear-Swerling, L. (2022). *Structured literacy interventions: Teaching students with reading difficulties, Grades K-6*. The Guilford Press.

Yang Tan Institute on Employment and Disability. (2022). *Disability statistics*. Disability statistics. Retrieved from https://www.disabilitystatistics.org/reports/acs.cfm?statistic=9.

About the Authors

Joseph Madaus received his B.A. and M.A. degrees from Boston College and his Ph.D. from the University of Connecticut. He is the Director of the Collaborative on Postsecondary Education and Disability, and a Professor in the Department of Educational Psychology in the Neag School of Education at the University of Connecticut. His research and publication interests include postsecondary education, transition, assessment and postschool outcomes of adults with disabilities. He can be reached via email at: joseph.madaus@uconn.edu.

Nicholas Gelbar received his B.S. degree and Ph.D. from the University of Connecticut. Currently, he is an Associate Research Professor at the University of Connecticut. He is the project director of the 2eASD grant, funded by the United States Department of Education. He is a Licensed Psychologist, National Certified School Psychologist, and a Board Certified Behavior Analyst at the Doctoral Level. He has expertise in a range of disability types and of the experiences of these students as they transition to and participate in higher education. He can be reached via e-mail at Nicholas.gelbar@uconn.edu.

Michael Faggella-Luby received his B.A. degree in English from College of the Holy Cross, M.Ed. in secondary education from the University of Notre Dame, and Ph.D. from the University of Kansas. His experience includes working as a teacher of both English and chemistry as well as serving as a school administrator in Jacksonville, FL. He is currently a professor in Department of Teaching & Learning Sciences at Texas Christian University. His research interests include embedding learning strategies during content area instruction in both secondary and postsecondary environments. He can be reached by email at: m.faggella-luby@tcu.edu.

Lyman Dukes III received his B.A. and M.S. degrees in psychology and special education, respectively, from the University of Florida and Ph.D. from the University of Connecticut. His experience includes working as a special education teacher in Tampa, Florida and serving in both academic and administrative positions at the University of South Florida. He is currently a professor in the Department of Language, Literacy, Ed.D., Exceptional Education, and Physical Education. His research interests include international perspectives in higher education and disability, universal design in higher education, and inclusive postsecondary education for students

with intellectual disabilities. He can be reached by email at: ldukes@usf.edu

Shannon Langdon received her M.Ed. in Counseling from Springfield College and is completing her Ph.D. at the University of Connecticut. Her experience includes working as a vocational rehabilitation counselor for transition-age youth with disabilities and as direct support staff for transition-age youth. She also has experience teaching secondary transition courses as well as introduction to special education for pre-service teachers. Her research interests include vocational counseling related to post-school outcomes for transition-age youth with disabilities. She can be reached by email at: Shannon.langdon@uconn.edu.

Acknowlegement

The authors thank Christopher Esposito for his work as part of the data coding process.