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# Journal of Postsecondary Education and Disability

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# Journal of Postsecondary Education and Disability

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# Service-Connected Disability: Belongingness, Access, and Quality of Life for Student Veterans

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Steven P. Cassidy<sup>2</sup>

## Abstract

This study provides a deeper understanding of the experiences of student veterans with disabilities through examination of type and severity of service-connected disability and impacts on transition to higher education. Through quantitative survey research ( $n=328$  respondents) at a medium sized regional research university in the West, we investigated the role of injury type and visibility as it relates to sense of belongingness on campus, impacts on quality of life, and perceptions of university disability services. Students with invisible disabilities reported stronger impacts of their injuries on belongingness and quality of life, and a significant proportion of students (46%) reported their injuries as severe and worsening over time. Student veterans with posttraumatic stress (PTS) or sensory injuries had higher odds of reporting their experiences with university disability services as “helpful.” Comparatively, student veterans with physical injuries or traumatic brain injury (TBI) had lower odds of finding disability services helpful. Through exploring relationships between injury severity, type, and perception of injuries, we provide insight into disability services delivery and belongingness for student veterans on campus.

*Keywords: student veterans, disability, belongingness, quality of life, disability services*

Focus on the success and support of student veterans has significantly increased in higher education research and practice (Borsari et al., 2017). Studies have focused on enrollment trends in higher education (McBain et al., 2012; Zhang, 2018), educational outcomes among student veterans (Cate et al., 2017; Holder, 2011), and student success and retention (Cate et al., 2017). Several studies have also examined the impacts of service-connected disability (SCD) on transition out of the military and into higher education (Kinney & Eakman, 2017; Kranke et al., 2017). Understanding how student veterans carry their disabilities is important given that student veterans have reported disabilities at twice the rate of non-veteran students (NSSE Report, 2010). This disparity in prevalence of disability is concerning given reportedly lower patterns of use of campus disability services among student veterans compared to non-veterans (Lange et al., 2016). Through the examination of type and severity of SCD and impacts on transition to

higher education, this study seeks to provide a deeper understanding of the experiences of student veterans with disabilities. The goal of this study is to inform strategies for improved awareness of available resources and advocacy for student veterans and provide insight for campus practitioners.

## Literature Review

### Veteran Transition to University

Servicemembers who enlisted in the military after September 11, 2001 were afforded new and expanded veterans' education benefits, commonly referred to as the Post 9/11 GI Bill. Expanded benefits include funding for housing, books, and full tuition. Several unique conditions and experiences of post-9/11 student veterans impact their transition to, and success in, higher education. These conditions include the role of age differences between student veterans and other students, financial challenges, difficulty navi-

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gating veteran benefits, cultural barriers stemming from a lack of understanding of veteran experiences, the complexities of balancing family and returning to school, and cultural differences between the military and higher education (Cook & Kim, 2009; Hamrick & Rumann, 2012; Mendez et al., 2018; Lim et al., 2018).

Several campus interventions have been shown to mitigate the transition difficulties and help student veterans develop strong advocacy and coping skills (Borsari et al., 2017). However, much of the literature on student veteran transition fails to identify specific services/strategies for student veterans with disabilities. This omission is significant, as academic success factors (i.e. retention and graduation) have been shown to vary based on category and severity of injury in broader studies on non-veteran students with disabilities (Safer et al., 2020).

### **Service-Connected Disability and Transition to University**

High numbers of returning student-veterans will have SCD. Enhancements in battlefield care have led to the highest survival rate of wounded service members in U.S. history (Church, 2009; Madaus et al., 2009). According to the VA, approximately 36% of post-9/11-era veterans have a service-connected disability (National Center for Veterans Analysis and Statistics, 2018). The VA assigns cumulative ratings based on the scope and severity of a given injury or injuries. While this determines compensation, veterans do not always believe their disability rating accurately reflects the impact their injury has on their quality of life. The common use of asymmetric warfare tactics, (e.g. roadside bombs) have led to frequent exposure to blast injuries resulting in mild or severe traumatic brain injury (TBI), one of the two signature injuries in the Post 9/11 era, along with posttraumatic stress (PTS). PTS and TBI have independently received considerable attention in the medical and psychological research literature (Brickell et al., 2014; Vogt et al., 2017; Lindquist et al., 2017). However, less scholarship on veteran transition to higher education has focused specifically on PTS (Barry et al., 2012) or TBI (Borasri et al., 2017; Helms & Libertz, 2014). Further, recent scholarship points to potentially significant compounding effects of these two commonly co-occurring injuries on negative outcomes, such as veteran suicide, suicidal ideation, and executive function challenges among veterans with these two disabilities (Brenner et al., 2015; Carlson et al., 2010). Despite these findings, little attention within the transition to higher education literature has focused on the interaction effect between TBI and PTS.

In addition to posttraumatic stress (PTS), other mental health conditions (e.g. depression and anxiety) have high prevalence rates after exposure to combat and military deployments (Milliken et al., 2007; Thomas et al., 2010). Rudd et al. (2011) found that of 628 student veterans surveyed, 34% were experiencing severe anxiety, 24% severe depression, and 45% exceeded the cutoff score for posttraumatic stress. In a study that matched veteran and non-veteran comparison students, Currier et al. (2018) found similarly high rates of veteran mental health conditions. Findings indicated e both a higher occurrence of mental health diagnoses for student veterans and higher levels of stigma related to seeking help (Currier et al., 2018). These studies highlight the differential effects of the range of mental health disabilities commonly impacting veterans, in addition to physical, sensory, and other service-connected disabilities.

### **Service-Connected Injury And Belongingness On Campus**

A multitude of factors can lead student veterans to leave campus and not return, but one area receiving increased focus is the role of belongingness (Hinton, 2020; McAndrew et al., 2019). The phenomenon of student veterans feeling out of place on campus has long been identified as a deterrent to persistence and graduation (DiRamio et al., 2008; Hamrick & Rumann, 2012). In a national study of student veteran well-being, 42% of student veterans reported a low sense of belonging compared to their Reservist (33%) and civilian (28%) counterparts (Barry et al., 2019). Even after comparing for background characteristics known to be highly correlated with sense of belonging on campus (e.g. age, GPA, year in school, ethnicity), student veteran status was a statistically significant predictor of sense of belonging (Barry et al., 2019). McAndrew et al. (2019) examined belongingness for student veterans through the lens of cultural (in)congruity. They found a significant link between feelings of not belonging on two scales measuring cultural connections and adjustment to college. These findings support earlier research findings related to connecting with peers. Due to differing levels of maturity and the gap in life experiences and responsibilities, many veterans have reported an inability to connect with civilian peers (DiRamio et al., 2008; Livingston et al., 2011, Whiteman et al., 2013).

Further, when considering intersecting identities for student veteran belongingness, it is important to consider unique impacts of disability on women veterans and their transition and integration on campus. Women are less likely to disclose their veteran status and seek out support services (Albright et al., 2019).

Lau et al., (2020) suggested that women veteran students should be treated as a unique cultural group with targeted services. Moore (2017) explored the role of veteran identity as a key component of transitioning into higher education, and asserted that when programs valorize and reify military veterans as a monolithic group, this messaging neglects deeper philosophical discussions on militarization and war policy and fails to capture the wide variety of perspectives veterans have on these issues and their experiences.

To remedy the social isolation impacting veterans in transition, national efforts to initiate veteran-to-veteran peer advising on campus have been established (Kees et al., 2017), and increasingly dedicated student veteran centers/spaces on campus are opening to provide space for students to connect, meet, and belong (Yeager & Rennie, 2020). However, the cultural incongruence that student veterans face may be linked to factors such as time-in-service, strength of military identity, combat experience, disability status, gender, and race (Atuel & Castro, 2018; Hinton, 2020). These identity intersections may be particularly important for student veterans as they transition to higher education and develop a sense of belonging. Scant research has investigated the role of intersecting identity dimensions and service-connected disabilities (SCDs) on belongingness and transition for student veterans.

### **Service-Connected Disability And Quality Of Life**

Existing scholarship on quality-of-life measures for post-9/11 veterans suggests exposure to combat increases rates of various negative outcomes (e.g. health, marital problems, alcohol abuse) compared to noncombat veterans and nonveterans (Sheffler et al., 2016; MacLean & Elder, 2007). Boehmer et al, (2004), found veterans who were mobilized to combat zones faced worse health outcomes for the first five years after their return. On the other hand, McCutchan et al. (2016) suggested the negative association of deployment and health may last even longer. Research also has paid particular attention to PTS, suggesting significant negative impact of PTS among post-9/11 veterans on a range of quality of life indicators (Vogt et al., 2017; Pittman et al., 2012). Some research focusing specifically on TBI has also found a negative impact on quality of life for veterans, particularly in the first-year post injury (Brickell et al., 2014).

### **Disability, Visibility, and Stigma**

Examinations of disability stigma indicate post-traumatic stress (PTS) among post-9/11 veterans is associated with a constellation of stigmatized asso-

ciations (Feinstein, 2015; Hipes et al., 2015). Other research has considered how the combat versus non-combat context of injury affects stigmatization versus valorization (Caddick et al., 2020). Both Kranke et al. (2017) and Flink (2017) reviewed scholarship exploring the relationship between invisible disabilities and stigma for student veterans and found generally negative cultural resonance for invisible SCDs. While some research on students with disabilities finds that those with visible disabilities have an easier adjustment to higher education than those with invisible disabilities (Safer et al., 2020), scant research focuses on the question of disability visibility among student veterans.

### **Veterans and Utilization of University Disability Services**

Most universities serve disabled veterans within existing disability services programs (McBain et al 2012, Vacchi & Berger, 2014; Hamrick & Rumann, 2012). Yet, disabled veterans are less likely than civilian students with disabilities to utilize campus disability services (Lange et al., 2016; Church 2009) and might benefit from disability services targeted to the veteran population (McBain et al., 2012). Several factors explain the reluctance or resistance of disabled veterans to use disability services; including disability stigma, perceiving the navigation as a hassle, and a sense that the accommodations available were designed for civilian-type disabilities (e.g. learning disabilities) and would not address their needs (e.g. triggering effect of loud noises for someone with PTS or difficulty concentrating) (Kranke et al., 2017; Lange et al., 2016; Morris et al., 2019).

Veterans with visible disabilities are more likely to utilize disability services than those with invisible disabilities (Kranke et al., 2017). While this pattern is also found among civilian students with disabilities (attributed to the heightened stigma on mental health disabilities), findings suggest the disparity is more exaggerated among student veterans (Kranke et al., 2017). Explanations for the tendency of student veterans to eschew disability services have focused on self-advocacy skills. Kinney & Eakman (2017) created and tested an instrument to measure self-advocacy for student veterans with disabilities. Findings from their study show that extent of exposure to support mechanisms and number of self-reported health conditions as statistically significant and positively correlated with self-advocacy of student veterans with disabilities. These findings suggest that efforts to bolster disabled student veterans' comfort with self-advocacy behaviors could translate into improved outcomes for student veterans.

## Research Questions

To examine how type and severity of service-connected disability affects student veterans' transition to higher education, we analyze three research questions:

1. Do type and visibility of disability shape sense of belongingness on the college campus?
2. Is there a relationship between type of disability and reported quality of life?
3. Is there a relationship between disability type and perceptions of university disability services?

## Methods

### Research Site

The research setting is a medium-sized regional research university situated in the West, hereafter referred to as Mountain West University (MWU). In Fall 2017, 1678 students had a direct armed forces connection (i.e. veterans, active duty, reserves). The institution is located near several military installations with high proportions of local population connected to the military. As a result of the community culture, institutional mission, and emphasis on campus military support, a host of services have been developed and implemented at the university. The Office of Disability Services works closely with the Veteran Services Office to introduce the services and supports available to student veterans, including testing accommodations, study supports, and faculty/course communications.

### Survey Design and Data

The survey used for this study contained questions designed to capture information on service characteristics (i.e. time spent in the military, service branch, service era), demographic characteristics, support service utilization, as well as veterans' experiences transitioning from the military to higher education. Additionally, the survey contained several questions about the nature, scope, and severity of any significant injuries incurred while serving in the military. The project received IRB approval and per the IRB informed consent was given on the first page of the online survey. The incentivized survey (\$5 gift card for completing the survey) was sent to a registry of 1,100 student veterans and rendered a sample of 328 respondents, not including active duty or national guard and reserves. Because the research focused on disabled veterans, current service members were not included in the survey solicitation. The survey sample consisted of 65% male respondents along with

33% female and 1% choosing other or non-response. In terms of ethnicity, the sample was predominantly white (72%), with Hispanic, multiple, and Black students comprising 23% of the sample; another 5% of sample participants identified as Asian American or Native American. Racial and ethnic minority groups made up 40% of Defense Department active-duty military in 2015 and 33% of the student body at MWU. This indicates that the sample consists of more white participants than the broad military population (Parker et al., 2017) and MWU.

A block of questions addressed the types of injuries incurred while in service, where and how the injuries occurred, and perceptions of how these injuries impact participants' daily lives. From the sample, 65% of respondents ( $n=211$ ) indicated they had incurred an SCD, leaving 117 respondents who did not indicate an SCD. The survey allowed participants to select multiple types of service-connected injuries. Of the total sample, 38% of respondents indicated multiple injuries, while 59% of veterans with an SCD had multiple injuries. Survey responses were then broken down into six dummy variables indicating the presence of a specific injury—with injury categories being not mutually exclusive. Breakdown by type of disability is represented in Table 1. Any disabilities unrelated to military service were not within the scope of this study. In Figures 1 and 2 below, percent of participants reporting each type of disability are broken down by gender and race.

For perceptions of disability, 15% of participants answered "yes" to whether they felt others can easily notice their injury. A slightly higher percentage (18% of those who had an SCD) felt like they "stick out" in the classroom because of their disability. When the sub-set of students who indicated an SCD were asked if they ever refer to themselves as disabled, approximately half responded yes, while 43% responded sometimes, and 8% answered no. For further exploration of the sample's descriptive characteristics and of the participants' open-ended responses to the survey, see Morris et al. (2019).

### Analysis

Quantitative methods were chosen for this project, specifically logistic and multiple ordinary least squares regressions. Multiple regressions were used for statistical models with continuous dependent variables. Logistic regressions were used to examine associations between control variables and dichotomous dependent variables. Stata version 15.1 was used to conduct analyses. The goal behind this approach was to yield findings which would be generalizable to the population of student veterans at MWU.

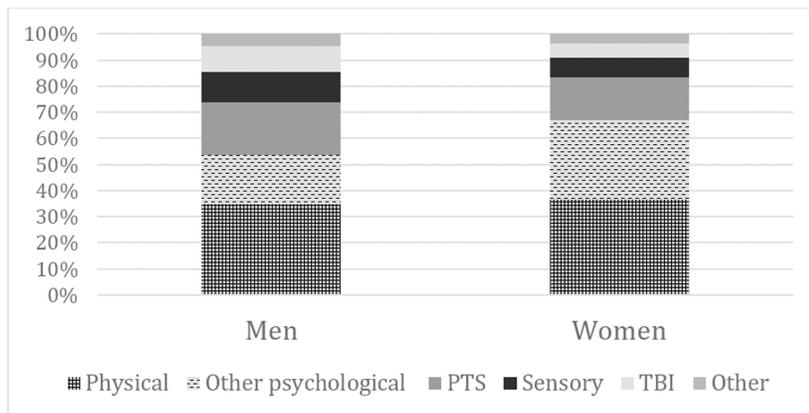
**Table 1**

*Sample by Injury Type*

	% of total sample	% of sample with SCD
Physical	45 (148)	68
Other psychological	28 (92)	43
Posttraumatic stress	25 (81)	38
Sensory	13 (44)	21
Traumatic brain injury	11 (37)	17
Other injury	5 (18)	7
Multiple injuries	38 (125)	59

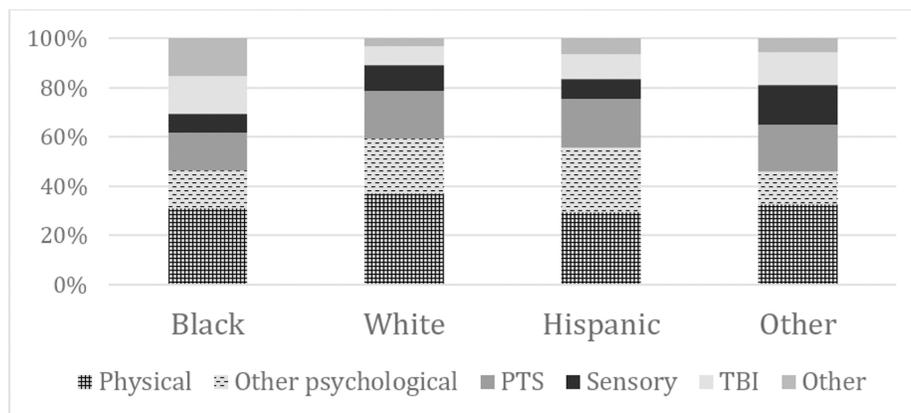
**Figure 1**

*Injury Type by Gender*



**Figure 2**

*Injury Type by Race*



Using regression analyses allowed the authors to investigate the impact of different types of SCD on the dependent variables, net of other factors.

During the analysis process, several models were tested on the dependent variables. These models included a number of different control variables. Models were tested which included demographic characteristics, (e.g., race, age, and gender), service characteristics (e.g., time spent in military service, branch of service, military rank, nature of military separation, and service era), and SCD specific questions (e.g., injury type, assigned VA disability rating, whether or not the student veteran refers to themselves as disabled, as well as scope and severity of injury). Akaike information criterion, Bayesian information criterion, and Wald tests were used to assess model fit for logistic regression models. *F*-tests and adjusted  $r^2$  values were used to assess model fit for ordinary least squares models. Models with injury type and injury noticeability as the primary control measures proved to be more parsimonious than models including demographic characteristics and/or service characteristics.

## Findings/Results

### Question 1: Do Type and Visibility of Disability Shape Sense of Belongingness on Campus?

The first question examined the relationship between type of SCD and belongingness. Table 2 presents the adjusted associations between SCD types and three different belongingness measures.

#### *Do You Stick Out in the Classroom?*

The first belongingness measure asked survey participants the question “Do you feel like you stick out in the classroom because of your injury?” This item was coded as a yes/no response. Model parameters included six different service-connected injury types and the perceived noticeability of an injury. Noticeability was captured through the question “Do you think others can easily notice your injury?” and was coded as a yes/no response.

The model produced three statistically significant predictors for sticking out in the classroom: noticeability, other psychological injury, and PTS. Noticeability was the strongest correlate ( $p < 0.001$ ). The odds of feeling like you stick out in the classroom are expected to be 15.86 times higher for veterans who felt others could easily notice their injury. Other psychological injury and PTS also increased the odds of feeling like you stick out in the classroom 3.57 and 3.36 times, respectively.

#### *Do You Feel Out of Place in the Civilian World?*

The second belongingness measure asked participants the question “Do you feel out of place in the civilian world?” Responses were originally captured on a three-item Likert scale (no/sometimes/yes). This variable was then transformed into a dummy variable, with 0=no and sometimes/yes=1. TBI was the only statistically significant predictor of feeling out of place in the civilian world ( $p < .05$ ). The odds of feeling out of place in the civilian world are 10.62 times higher among veterans with TBI.

#### *Combined Belongingness Measure*

The third outcome variable assessed in Table 2 regresses model parameters on a combined belongingness measure. This measure was generated using both “Do you feel like you stick out in the classroom because of your injury?” and “Do you feel out of place in the civilian world?” Participants who answered both “yes” to sticking out in class and either “sometimes” or “yes” to feeling out of place in the civilian world were coded as one. Conversely, answering no to one or both questions resulted in being coded as a zero.

Noticeability, other psychological injury, PTS, and TBI were statistically significant predictors for the combined belongingness measure: The odds of scoring on the combined belongingness measure are expected to be 14.48 times higher among veterans who feel others can easily notice their injury. Other psychological injury increases the odds of scoring on the combined belongingness measure by 4.66. PTS increases the odds by 4.41 and TBI increases the odds by 2.88.

### Question 2: Is There a Relationship Between Type Of Disability And Reported Quality Of Life?

Our second research question considers the impact of disability type on quality of life. To investigate the relationship between disability type and quality of life, we combined two survey questions into a standardized composite variable. The first question asked participants “To what extent has your injury negatively affected your quality of life?” and was captured on a four-point scale, ranging from: “not at all” to “very much.” The second question asked participants “Has the impact of your injury on your quality of life changed over time?” This was assessed on a three-point Likert scale: improved = 0, no change = 1, and worsened = 2. As these questions were captured on different scales, they were converted into standardized values, or Z-scores, and collapsed into one measure. Our study found 45.5% of those reporting an SCD experienced it as both a severe and worsening

**Table 2***Logistic Regression on Belonginess Measures Expressed as Odds Ratios*

	<b>Stick out in the classroom</b>	<b>Out of place in the civilian world</b>	<b>Combined belongingness</b>
Noticeability	15.86*** [5.38, 46.72]	0.82 [0.32, 2.10]	14.48*** [4.60, 45.57]
<b>Injury Type</b>			
Physical	0.65 [0.25, 1.68]	0.65 [0.31, 1.40]	0.74 [0.27, 2.03]
Other Psychological	3.57** [1.39, 9.17]	1.48 [0.75, 2.93]	4.66** [1.70, 12.74]
Posttraumatic Stress	3.36* [1.24, 9.12]	1.59 [0.74, 3.42]	4.41** [1.53, 12.73]
Sensory	2.23 [0.83, 6.05]	1.37 [0.54, 3.49]	2.31 [0.83, 6.42]
Traumatic Brain Injury	2.58 [0.94, 7.08]	10.62* [1.33, 84.81]	2.88* [1.03, 8.11]
Other Injury	1.85 [0.41, 8.37]	1.13 [0.27, 4.70]	1.35 [0.26, 6.97]

Note. \*Significant at  $p \leq 0.05$ , \*\*significant at  $p \leq 0.01$ , \*\*\*significant at  $p < 0.001$ , ( $n = 211$ ), [95% CI]

impact on their quality of life. Further investigation of the severity of injury (measured as impact on quality of life) and individuals' VA disability rating show a positive correlation ( $r = .43$ ). Despite the positive correlation between VA disability rating and severity impact, we chose not to use this correlation in the composite "Quality of Life" measure, as a significant proportion of respondents (34%) were not satisfied with their VA disability rating. This correlation suggested an inaccurate representation of the impact of disability on their lived experience.

A multiple regression analysis was then employed to predict the impact of noticeability and SCD type on the composite quality of life measure. Together these variables accounted for 13% of the variance in the quality-of-life standardized score (see Table 3). Students who reported having PTS ( $B = .25$ ), having a physical impairment ( $B = .26$ ), and the variable Noticeability (others notice my injury) ( $B = .31$ ) were found to be significant in predicting quality of life for student veterans ( $p < .05$ ). Because the outcome measure is a standardized score, coefficients should be interpreted in terms of standard deviation units in the distribution of responses by survey respondents.

All three significant predictors have a positive coefficient value, therefore an increase in each variable is associated with a greater negative impact of the SCD on quality of life.

### **Question 3: Is There a Relationship Between Disability Type and Perceptions of University Disability Services?**

Our third research question examines whether type of SCD is significantly associated with perceptions of campus disability services as helpful or not helpful. Not all disabled veterans use the disability services center on campus, reducing the analytic sample for question three from 211 respondents to 101. Responses to the perceived helpfulness of disability services survey question were evenly distributed with 53% of student veterans finding disability services not helpful and 47% finding it helpful. Table 4 presents the results of a logistic regression model with veterans' perceptions of MWU's disability services helpfulness as the outcome variable. PTS ( $OR = 3.4$ ) and sensory injuries ( $OR = 3.21$ ) significantly increased the odds of finding disability services helpful ( $p < .05$ ). Student veterans with physical injuries ( $OR$

**Table 3***OLS Regression on Standardized Quality of Life Composite*

	<b>Coef.</b>	<b>95% CI</b>
Noticeability	0.31*	[0.04, 0.57]
<b>Injury Type</b>		
Physical	0.26*	[0.05, 0.47]
Other psychological	0.13	[-0.06, 0.33]
PTS	0.25*	[0.03, 0.47]
Sensory	0.14	[-0.10, 0.38]
TBI	0.22	[-0.06, 0.51]
Other	0.24	[-0.13, 0.61]
Adjusted r <sup>2</sup>	0.13	

Note. \*Significant at  $p \leq 0.05$ , ( $n = 211$ )

**Table 4***Logistic Regression on Finding Disability Services Helpful*

	<b>Odds Ratio</b>	<b>95% CI</b>
Noticeability	0.96	[0.31, 2.99]
<b>Injury Type</b>		
Physical	0.24**	[0.08, 0.74]
Other psychological	1.67	[0.66, 4.21]
Posttraumatic stress	3.40*	[1.15, 10.11]
Sensory	3.21*	[0.99, 10.44]
Traumatic brain injury	0.23*	[0.06, 0.82]
Other	0.10*	[0.01, 0.66]

Note. \*Significant at  $p < 0.05$ , \*\*significant at  $p < 0.01$ , ( $n = 101$ , including only those who indicated an SCD and answered the helpfulness question about disability services)

= .24), TBI ( $OR = .23$ ), and other injuries ( $OR = .1$ ) had significantly lower odds of finding disability services helpful ( $p < .05$ ). Unlike the results in Tables 2 and 3, noticeability of an injury was not a significant predictor in the logistic regression presented in Table 4. These results suggest that student veterans may not have universally positive views of campus disability services, and supports for specific injuries, such as physical injuries or TBI, may be underdeveloped.

## Discussion

This study set out to provide a deeper understanding of student veterans with disabilities by exploring the impacts of disability type and visibility on their perceptions of belonging, quality of life, and campus disability services. Although student veteran enrollment at MWU is higher than most campuses, the findings in this study provide insight for any campus with post-9/11 student veterans enrolled.

### Implications of Study Results

Our first research question looked at the impact of disability type and visibility on belonging. Belief that one's injury is noticeable, as well as PTS and other psychological injury, were significant predictors of participants feeling as if their disability makes them stick out in the classroom. While feeling one's disability is noticeable might logically lead to feeling one sticks out in the classroom, our findings regarding PTS and other psychological injuries concur with existing research on the impact of invisible disabilities (Flink, 2017). The increased awareness of PTS as the defining injury of post-9/11 veterans might lead veterans to feel that this injury is noticeable despite not necessarily having a physical manifestation. The sense that PTS and other psychological injuries make student veterans stick out in the classroom might also be related to the idea that the classroom is a space for academic activities and thus centers brain functioning and cognition as primary within the classroom space. This space for intellectual development and growth might lead student veterans to feel their PTS/psychological disability is noticeable as they engage in activities requiring speed of thought and clarity of presentation ideas.

TBI was a significant predictor of students feeling out of place in the civilian world. As with PTS, TBI—which might typically be viewed as an invisible disability—emerged as a significant predictor of students feeling out of place. Considering the findings of all three belongingness measures, the significance of PTS, TBI and other psychological injury are interesting in that they are generally thought of

as invisible disabilities and culturally associated with veteran status.

A surprising finding was the disparity in perceptions about fitting in on campus versus in the civilian world, with students feeling much stronger about not belonging on campus due to their disabilities. This finding suggests a unique effect of the campus environment and may have implications for military transition assistance programs. These programs traditionally focus on career readiness rather than support mechanisms for transitioning into higher education. Campus transition programs for veterans should place emphasis on belongingness. Efforts to promote belongingness include investing in support mechanisms such as a student veteran organization or peer-advising program. Moore (2017) emphasizes the importance of recognizing the diversity of perceptions of military service and veteran identity as one of many identities for student veterans.

Our second research question explored the impact of disability type and visibility on quality of life. A significant proportion of students in our sample reported a detrimental impact from their disability. Of the students who reported an SCD, 46% ( $n = 94$ ) experienced their disability as both severe and as having a worsening impact on their quality of life. Feeling as if one's injury is easily noticeable, physical injury, and PTS were all significant predictors of decreased quality of life. Our findings suggest that despite concerns about a possible over-diagnosis (Gallagher, 2016) of PTS and VA benefit claims among post-9/11 veterans (nearly one of every four veterans according to Fulton et al., 2015), these injuries reflect real challenges that some student veterans face.

Finally, the third research question investigated the impact of disability type and visibility on views of campus disability services. Finding that certain SCDs increase the odds of finding campus disability services helpful (PTS, sensory injury) and other SCDs decrease the odds (physical injury, TBI, other) indicates the importance of building self-advocacy skills for veterans with disabilities (Kinney & Eakman, 2017) and breaking down the barriers identified in the literature related to stigma and misperceptions about disability services (Kranke et al., 2017; Lange et al., 2016).

### Implications for Practice

Issues such as stigma, a lack of understanding about veteran experiences on campus, lack of advocacy skills by veterans, and a feeling of otherness can lead student veterans to cloak their disability status and ignore opportunities for accommodations and support (Kranke et al., 2017). This decision is particularly the case for student veterans with invisible

disabilities, such as PTS, TBI, and other psychological injuries (Rudd et al., 2011; Currier et al., 2018). Throughout our analyses, PTS was a predictive factor for the outcomes belongingness, quality of life, and perceptions of support for student veterans. However, we found an increase in the odds of finding campus disability services helpful for students with PTS. Given the high numbers of students reporting PTS as a disability (37.9%) and given the high proportions of student veterans with PTS reported in the literature (Fulton et al., 2015; Rudd et al., 2011) this is an encouraging finding. While usage of disability services by veterans is reported lower than non-veterans on campus (Safer et al., 2020), our findings demonstrate the value of disability services for students who have PTS and sensory injuries and signal the importance of faculty and staff efforts to encourage registration/enrollment with disability services for student veterans.

Although collecting disability status information for incoming student veterans may violate privacy rights, there are no limitations around provision of information about disability services and accommodations to new students. Opportunities for outreach include new student orientations, student veteran organization meetings, campus events for veterans (e.g. Veteran's Day celebrations), and through the veteran services office programs (e.g. peer advising programs, etc.). Messaging about accommodations can take the form of briefings, first-person accounts from willing student veterans with positive experiences with disability services, and through strong partnerships across campus to consistently promote accommodation services. Although a smaller proportion of student veterans are enrolled in the Veteran Readiness and Employment program (i.e. Voc Rehab) (VA Factsheet, 2021), this program is facilitated through VA employed counselors who work directly with students to support and approve their educational/degree plans. Only students with significant SCDs are eligible for the Voc Rehab program, thus all these students would likely benefit from registering with disability services. Creating open communication and partnerships between campus disability services and the Voc Rehab counselors can promote help-seeking and better outcomes for students.

Any campus efforts should also consider the stigma barriers that exist and implement countermeasures to ensure students recognize the importance of seeking help (Valenstein et al., 2020). Romero et al. (2015) found that avoidant coping significantly predicted depressive and anxiety symptoms as well as posttraumatic stress symptoms among a sample of student veterans, emphasizing the need to actively reach out to student veterans with sources of sup-

port. For example, campuses could create a system where students are pre-enrolled with disability/access services based on their veteran status, effectively creating an opt-out service model rather than a traditional opt-in model. Veterans, who were acculturated to mandatory participation in programs would likely accept an additional check-the-box procedure as part of their campus orientation. This procedural change would create an immediate source of support and touchpoint for all student veterans through the disability services office. This type of business process could lead to changes in mindset around stigma, from "those services are for other people" to a normalized best-practice for student success.

Evidence from studies has established that recovery from PTS and other psychological injuries are much more effective for individuals who have a strong social support system (Geuzinge et al., 2020). Further evidence suggests that the impacts of PTS are lessened for those living in cultures where there is broad understanding about the source of the trauma (i.e., war) and a shared burden of the impacts from all members of the community (Junger, 2016; Hautzinger & Scandlyn, 2014). For veterans entering higher education, too often this transition occurs in isolation, and the culture they enter has very little understanding of the nature of war and associated trauma (Borsari et al., 2017).

To address the cultural divide between faculty and staff and military veterans, training programs have been established on campuses (Dillard & Yu, 2018). These trainings, designed to develop a visible network of faculty and staff to whom student veterans can go to receive assistance, can build empathy and communication channels between faculty and staff and transitioning student veterans (Dillard & Yu, 2018). An awareness by faculty of topics such as transitioning from military to civilian life and accommodating service-connected disability has been identified as an effective step in generating an inclusive environment on campus (Gonzalez & Elliot, 2012; Osborne 2014; Ghosh et al., 2020).

Moreover, disability resources offices are increasingly offering training and outreach to improve campus access. In a national survey of disability resources offices on 399 college campuses, disability resources offices reported partnerships with several other campus entities. For example, 50% of respondents reported working with counseling and psychological services (Scott, 2019). Another initiative sought to improve access and inclusion for students with disabilities through the Disability Awareness, Training, and Empowerment (DATE) program (Roth et al., 2018). These collaborative approaches to sup-

porting inclusion by disability offices can serve as templates for addressing the unique needs of student veterans through training campus personnel.

### Limitations and Suggestions for Future Inquiry

The co-occurring existence of PTS and TBI for veterans is commonly discussed in the literature, with clear linkages between the two conditions regarding mental health consequences such as suicide attempts and ideation (Brenner et al., 2015; Wisco et al., 2014). Studies have indicated as high as 80% of post-9/11 veterans who have sustained a TBI also identify symptoms of or are treated for PTS (Hayes, 2019). In our study, 32% of participants with an SCD had both PTS and TBI. We attempted to examine co-occurrence by including interaction effects in the regression models. However, when introducing interaction effects, we found no statistically significant effects, which is inconsistent with the literature. This finding is, in part, due to the limitation of using interaction effects in logistic regression models, specifically for questions one and three (Hoffman, 2016). An interaction may not show up due to a lack of variance in the sample or it may be that the cluster of symptoms converges to such an extent that, within our sample, the binary variables are capturing the same conditions. Evidence of this relationship can be seen in the high correlation between PTS and TBI among the sample ( $r = 0.51$ ).

Additionally, there are methodological limitations that may limit generalizability. For example, our data were cross-sectional. A longitudinal study or access to student records would be necessary to investigate long-term impacts of disability for student veterans. Further, all data were collected at one institution, and the conditions of the campus and community may limit generalizability beyond analogous campuses. Future studies should seek to capture data from a wider scale of geography, sector type, and student enrollment profile.

Regarding future research on student veterans' disability impacts, additional inquiry is needed to understand interactions with disability services on campus. Southwell et al. (2018) found significant differences in SSM/Vs and civilian students' frequency of visits to faculty and academic advisors, but their study did not cover visits or usage of disability services offices. Deeper understanding of student veterans' experiences with accommodations (e.g. how they learn about services, the unique impacts of accommodations, and what is lacking) can help lead to more effective interventions and tailored accommodations.

### Conclusion

Student veterans in this study were more likely to feel out of place on campus than in other contexts, and the invisible disabilities they bring to campus were more impactful than visible injuries. Although stigma and other challenges may limit help seeking and advocacy behavior, those who did seek help from the disabilities service office found the services to be helpful. As we continue to support student veterans, it will be important to fully understand their unique needs and concerns and consider effective strategies for increasing engagement with campus services.

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# Registering for Accommodations Among College Students with Psychological Disorders

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## Abstract

The results of the current study present a nationally-representative examination of which college students with psychological disorders register for accommodations at their institutions of higher education. Results indicate that students with psychological disorders already receiving treatment via medication and/or therapy were more likely to register for accommodations at their institution. Results also indicated that students with ADHD, bipolar, eating disorder, personality disorder, and other psychological disorders were all significantly less likely to register for accommodations as compared to students without these disorders. Students with neurodevelopmental disorders such as Autism Spectrum Disorder (ASD) were significantly more likely to register for accommodations as compared to students without ASD, which may be the result of less perceived stigma or less concern of individuals with ASD with perceived stigma.

*Keywords: psychological disorders, college students, higher education*

In postsecondary education across the United States, students must register with offices of disability services at their institutions in order to receive accommodations for their disability (Bell & Zamani-Gallaher, 2017; Smith et al., 2019; Yssel et al., 2016). This process of self-identification is the first part of the process in seeking accommodations for one's disability, which is in contrast to secondary school where accommodations are provided to students automatically (Toutain, 2019). In secondary settings, students are provided with accommodations via the mandate of the Individuals with Disabilities Education (and Improvements) Act (IDEA; IDEIA, 2004) of 1997, which ensures a free, appropriate public education. In postsecondary education settings, this process requires the disclosure of disability via appropriate documentation that is evaluated by their institution of higher education. As a result, the door to accommodations first must be opened by a disclosure of disability by the student registering with their on campus office of disability services (Yssel et al., 2016).

Students with disabilities are entitled to receive reasonable academic accommodations as provided by the Americans with Disabilities Act (ADA) of 1990 and subsequent amendments. These accommodations are specific to individual student's needs in order to

provide meaningful equal opportunities to learn by removing barriers related to the student's functional limitations. Examples of accommodations and modifications include but are not limited to: providing digital materials; allowing service animals on campus; providing written lists of instructions; providing a quiet room for testing; allowing for extended time on tasks; and preferential seating.

However, many students with disabilities do not register for accommodations and thus cannot request accommodations when entering higher education. Newman and Madaus (2015) found that as few as 35% of students with disabilities registered for accommodations, and even fewer requested accommodations after registering (23%). Fichten et al. (2018) found only a slightly higher percentage of students with disabilities registering for accommodations (44%) within the Canadian higher education context. This discrepancy in the number of students registering for and receiving accommodations versus those students eligible to do so has been attributed to a variety of barriers experienced by students with disabilities (Barnard-Brak, et al., 2010; Lightner et al., 2012; Mamboleo, et al., 2020; Toutain, 2019).

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## Literature Review

In a systematic review of the literature of barriers and challenges experienced by students with disabilities as a whole, Toutain (2019) found the most commonly reported barriers to be a lack of student knowledge or awareness of disability services, a lack of appropriate disability documentation for institutions of higher education, and potential negative reactions of peers and faculty for seeking accommodations. Barnard-Brak et al. (2009) found that attitudes toward requesting accommodations were associated with students requesting accommodations. These attitudes toward requesting included academic integrity, disability disclosure, disability acceptance, and accommodations process. Barnard-Brak et al. (2009) found that students with disabilities who considered accommodations as lacking in academic integrity or the same level of rigor were more likely not to request accommodations. Additionally, students who did not feel comfortable disclosing their disability or did not accept their disability were more likely not to request accommodations (Barnard-Brak et al., 2009). Finally, students who considered the accommodations process to be overly complicated or difficult to traverse were also more likely not to request accommodations (Barnard-Brak et al., 2009). The results of Lightner et al. (2012) echoed many of the sentiments found in past literature indicating that a proactive approach of disclosing one's disability and seeking help were associated with a higher likelihood of requesting accommodations.

Registering for accommodations has been associated with more positive outcomes for students with disabilities when entering higher education (Chiu et al., 2019; Pingry O'Neill et al., 2012; Schechter, 2018). In studies of college students with disabilities, Chiu and colleagues (2019) found that registering for accommodations was positively associated with a higher end-of-semester grade point average. Pingry O'Neill and colleagues (2018) found that registering for and receiving accommodations was associated with an increased likelihood of graduating. Additionally, Schechter (2018) found that registering for accommodations within the first year was most associated with an increased likelihood of graduating.

Students with psychological disorders experience their own unique issues associated with registering for and requesting accommodations (Belch, 2011; O'Shea & Kaplan, 2018; Stein, 2014; Stein, 2013). However, there is little literature that has disaggregated students with disabilities overall in relation to the accommodations process, and the literature generally has not disaggregated students with psycho-

logical disorders. Notably, the population of students with psychological disabilities has grown considerably within institutions of higher education relative to other populations of students with disabilities (Koch et al., 2017). One of the issues facing students with psychological disorders in registering for and requesting accommodations is that of the perceived stigma associated with psychological disorders. The stigma or perceived negative perception of psychological disorders can prevent these students from registering for accommodations (Deckoff-Jones & Duell, 2018). Even though information regarding one's specific disability diagnosis is kept confidential from faculty and other students, students may not want to disclose this information even to institutional staff due to the perceived stigma (Erevelles, 2011). Other students with psychological disorders may simply want to establish a new identity in higher education without it being defined by disability (Marshak et al., 2010; Squires et al., 2018). As a result, students with psychological disabilities have been found to have particular difficulty in self-advocating for accommodations (McEwan & Downie, 2019).

Psychological disorders, however, are common. According to the National Alliance on Mental Illness, one in five adults in the United States experiences mental illness each year (National Alliance on Mental Illness, 2019). Even though there is a broad range of supports, including the availability of mental health counselors, some college students with psychological disorders still face unique educational and social challenges (Erevelles, 2011). Unfortunately, the perceived stigma or negative perception surrounding psychological disorders prevent some students from disclosing their psychological disability during the admission process, which subsequently makes them unable to seek accommodations. These students may infer that having a psychological disorder will be judged as a sign of unfitness for admission or matriculation into their specific program of their choice. They also may fear more tangible forms of discrimination resulting from stigma or negative perception of students with psychological disorders, such as bullying, harassment, and even physical violence (Hamraie, 2016).

To reiterate, there has been little literature that examines how students with psychological disorders experience the accommodations process, and the literature that does exist has not deconstructed how such students experience stigma in the accommodations process. We were able to find two studies in the last ten years that examined the accommodations process with respect to students with psychological disorders (Stein, 2013, 2014). Stein (2013) discussed the stigma

perceived by students with psychological disorders who were already registered for disability accommodations on campus. The second Stein (2014) study similarly focused on students with psychological disorders who had already made the decision to register for accommodations on campus. Neither study examined the context of students with psychological disorders who had not registered for accommodations versus those who did register for accommodations. From both studies, it is clear that stigma played a role in the accommodations process in terms of their disclosure to faculty and peers, but the role of stigma in relation to the disability services staff in registering for accommodations to begin with was not discussed. Stein (2013) and Stein (2014) begin from the starting point of students with psychological disorders who are already registered for accommodations having already presumably overcome some degree of stigma to register.

The purpose of the current study was to examine what factors predicted whether students with psychological disorders registered for accommodations at their institution of higher education. This first step of registering for accommodations must be performed by students in order to subsequently request and receive accommodations (Yssel et al., 2016). For the purposes of the current study, psychological disorders were operationally defined as those non-physical (i.e., orthopedic or mobility impairments) and non-sensory (i.e., visual or hearing impairment) disorders and that were not explicitly or predominantly related to academic skills such as speech impairments or learning disabilities (i.e., dyscalculia or dyslexia). To achieve the purpose of the current study, we utilized data from the Healthy Minds Study (Healthy Minds Network, 2020), which provides a nationally-representative, weighted, sample of thousands of college students across the United States. The overarching research question was: What factors are associated with a student with a psychological disorder registering for accommodations on campus? There was particular interest in disaggregating those disorders to provide as complete a picture as possible.

## Method

### Sample

The sample consisted of 8,860 college students with self-identified psychological disorders determined via anonymous survey across the United States as part of the wider Healthy Minds Study for 2019-2020 school year of 89,181 students (HMS; Healthy Minds Network (HMN) 2020). The Healthy Minds Study is part of the Healthy Minds Network, which

consists of a network of four-year colleges and universities created to study the mental health of young people (HMN, 2020). The Healthy Mind Study is a survey delivered online that seeks to generate knowledge via the perspectives of public health, education, medicine, psychology, and information sciences (HMN, 2020). The data are publicly available via request from the HMN website. Students who participated in the Healthy Minds Study self-reported whether they were registered with their on-campus office of disability accommodations. Data from the Healthy Minds Study has been utilized in a variety of ways from examining how resident advisers may be gatekeepers to mental health services on campus (Lipson & Eisenberg, 2016), the welfare of student veterans (Fortney et al., 2017), and the symptoms of eating disorders among college students (Lipson & Sonnevile, 2017).

With regard to gender, approximately 53.9% ( $n = 4,776$ ) were female, 43.8% ( $n = 3,881$ ) were male; 0.3% ( $n = 27$ ) selected trans male, 0.2% ( $n = 18$ ) selected trans female, 1.1% ( $n = 97$ ) were gender non-conforming, and the remaining 0.6% ( $n = 53$ ) were self-identified outside of these categorizations. For ethnicity, approximately 12.9% ( $n = 1,143$ ) identified as Hispanic or Latinx. For race, approximately 11.5% ( $n = 1,019$ ) were African American, 12.3% ( $n = 1,098$ ) were Asian, 0.8% ( $n = 71$ ) were Native Hawaiian or Pacific Islander, 1.6% ( $n = 142$ ) were Native American, American Indian, or Alaska Native, 66.8% ( $n = 5,918$ ) were White, 2.0% ( $n = 177$ ) were Middle Eastern, and 1.8% ( $n = 159$ ) self-identified as another category not provided. The average age of survey respondents was 21.12 ( $SD = 6.97$ ). Approximately 31% ( $n = 2,746$ ) were first-year students, 28% ( $n = 2,480$ ) were second-year students, 21% ( $n = 1,860$ ) were third-year students, 17% ( $n = 1,507$ ) were fourth-year students, and 3% ( $n = 267$ ) were fifth-year or longer students. These demographic variables were not significantly or substantively associated with registering for accommodations, and thus were not included as covariates in the model.

### Measures

All measures were obtained from the Healthy Minds Study (HMS, 2020). Approximately 41% ( $n = 3,593$ ) of the sample of students with psychological disorders were registered for accommodations. Psychological disorders for the purposes of the current study included: Anxiety Disorders; Attention Deficit Hyperactivity Disorder; Bipolar and related Disorders; Depression; Eating Disorders; Obsessive Compulsive Disorder; Neurodevelopmental Disorders (including Autism Spectrum Disorder); Trauma

and Stressor Related Disorders; Substance Abuse Disorders; Personality Disorders; and other Psychological Disorders. Other psychological disorders would include dissociative disorders (e.g., dissociative identity disorder, formerly known as multiple personality disorder), paraphilic disorders (e.g., pedophilia, necrophilia), and neurocognitive disorders (e.g., dementia) (APA, 2013). These other psychological disorders comprised less than two percent of the sample (see Table 1). We excluded students with learning disabilities as these disorders have been indicated as having a differential impact to that of psychological disorders with an academic impairment being the focus in those disorders (Jorgensen et al., 2018). Table 1 provides the frequencies and percentages for the psychological disorders.

### Analyses

Logistic regression techniques were employed via *Mplus* (v. 8.0; Muthén & Muthén, 2018). Logistic regression analyses were appropriate given that the dependent variable of interest was whether a student registered for accommodations, which was dichotomously coded as “yes” or “no.” Dichotomously coded covariates included: currently taking medication, currently receiving therapy, taking medication for academic performance, ADHD, depressive disorder, anxiety disorder, bipolar and related disorder, obsessive compulsive disorder, trauma and stressor disorder, neurodevelopmental disorder, eating disorder, other psychological disorder, personality disorder, and substance abuse disorder. Continuously coded covariates included: self-reported GPA and current financial situation. Weights were applied and design effects adjusted via *Mplus* to more accurately estimate standard errors as the HMS contains a complex survey design (Hahs-Vaughn, 2005, 2006). A pseudo-*R*-squared value was reported as a measure of model fit. We utilized values of the Nagelkerke’s *R*-square, which is scaled from 0 to 1 akin to a typical *R*-squared value. For logistic regression, a pseudo *R*-square is reported (Hosmer et al., 2013). Differences in Bayesian Information Criterion (BIC) and Akaike Information Criterion (AIC) values between the unconditional (without covariates) and conditional models were also indicative of model fit. In addition to standardized regression coefficients and *p*-values reported, odds ratio values (i.e.,  $e^B$ ) were reported for each covariate. Odds ratio values with more deviation from 1 (less or more) indicate the greater effect.

### Results

The difference between the unconditional and conditional (with covariates) was statistically significant ( $\chi^2(16) = 379.17, p < 0.001$ ). The conditional model (AIC = 18,554.56 and BIC = 18,712.84) fit the data significantly better than the unconditional model (AIC = 67,003.05 and BIC = 67,021.85). The pseudo *R*-squared value for this model is 0.15. Overall, the model appears to fit the data well. As such, individual estimates for covariates were next examined. Table 2 provides the standardized regression coefficients, *p*-values, and odds ratio values.

From Table 2, taking medication ( $\beta = 1.13, p < 0.001, e^B = 3.09$ ) or receiving therapy ( $\beta = 0.34, p = 0.02, e^B = 1.40$ ) was significantly associated with an increased likelihood of registering for accommodations. Additionally, taking medication for academic performance was significantly associated with an increased likelihood of registering for accommodations ( $\beta = 0.65, p = 0.003, e^B = 1.92$ ). The correlation between taking medication and taking medication for academic performance was statistically significant and moderate ( $r = 0.50, p < 0.05$ ). We did not consider this correlation high enough to exclude either variable from analysis due to collinearity. Higher self-reported grade point average (GPA) was negatively associated with registering for accommodations ( $\beta = -0.04, p = 0.003, e^B = 0.81$ ). Students with ADHD ( $\beta = -1.72, p < 0.001, e^B = 0.18$ ) and bipolar and related disorders ( $\beta = -0.68, p = 0.04, e^B = 0.51$ ) had a decreased likelihood of registering for accommodations as compared to students without these disorders. Students with neurodevelopmental disorders such as Autism Spectrum Disorder (ASD) ( $\beta = 2.67, p < 0.001, e^B = 14.43$ ) had an increased likelihood of registering for accommodations as compared to students without ASD. Students with an eating disorder ( $\beta = -0.48, p = 0.04, e^B = 0.62$ ), other psychological disorder ( $\beta = -2.23, p = 0.007, e^B = 0.11$ ), or personality disorder ( $\beta = -1.36, p = 0.002, e^B = 0.26$ ) all had a decreased likelihood of registering for accommodations as compared to students without these disorders.

### Discussion

The results of the current study indicate that students with psychological disorders already receiving treatment via medication and/or therapy were subsequently more likely to register for accommodations at their institution. This result was not surprising given that these students already appeared to be engaged in help-seeking behaviors by pursuing appropriate treatment. These students currently receiving treatment

**Table 1***Frequencies and Percentages of Students with Psychological Disorders Registered*

<b>Disorder</b>	<b>% Registered†</b>	<b>% Sample</b>
Attention Deficit Hyperactivity Disorder	16.2%	3.8%
Depressive Disorder	52.4%	25.0%
Anxiety Disorder	59.6%	23.8%
Bipolar and Related Disorder	7.5%	2.3%
Obsessive Compulsive Disorder	12.1%	3.6%
Trauma and Stressor Disorders	18.7%	5.2%
Neurodevelopmental Disorder (Autism)	22.9%	0.8%
Eating Disorder	7.5%	3.2%
Other Psychological Disorder	1.8%	0.5%
Personality Disorder	3.8%	1.0%
Substance Abuse	2.9%	1.4%

Note. †% refers to percentage.

**Table 2***Logistic Regression Results Related to Accommodation Registration for Postsecondary Students with Psychological Disorders*

Variable	$\beta$ †	SE	<i>p</i>	Odds Ratio
<b>Currently taking Medication</b>	<b>1.13</b>	<b>0.22</b>	<b>&lt;0.001</b>	<b>3.09</b>
<b>Currently receiving therapy</b>	<b>0.34</b>	<b>0.14</b>	<b>0.02</b>	<b>1.40</b>
Self-reported GPA	-0.14	0.09	0.12	0.87
<b>Taking medication for academic performance</b>	<b>0.65</b>	<b>0.22</b>	<b>0.003</b>	<b>1.92</b>
Current Financial Situation	0.24	0.17	0.17	1.27
<b>ADHD</b>	<b>-1.72</b>	<b>0.36</b>	<b>&lt;0.001</b>	<b>0.18</b>
Depressive Disorder	-0.30	0.17	0.08	0.74
Anxiety Disorder	-0.13	0.20	0.53	0.88
<b>Bipolar and Related Disorder</b>	<b>-0.68</b>	<b>0.33</b>	<b>0.04</b>	<b>0.51</b>
Obsessive Compulsive Disorder	0.08	0.18	0.68	1.08
Trauma and Stressor Disorders	-0.17	0.18	0.34	0.85
<b>Neurodevelopmental Disorder (Autism)</b>	<b>2.67</b>	<b>0.30</b>	<b>&lt;0.001</b>	<b>14.43</b>
<b>Eating Disorder</b>	<b>-0.48</b>	<b>0.24</b>	<b>0.04</b>	<b>0.62</b>
<b>Other Psychological Disorder</b>	<b>-2.23</b>	<b>0.82</b>	<b>0.007</b>	<b>0.11</b>
<b>Personality Disorder</b>	<b>-1.36</b>	<b>0.44</b>	<b>0.002</b>	<b>0.26</b>
Substance Abuse Disorder	-0.02	0.305	0.95	0.98
	BIC	AIC	$\chi^2$ (df)	Pseudo $r^2$
Unconditional	67,021.85	67,003.05	(16)	0.15
Conditional	18,712.84	18,554.56	379.17	

Note. † $\beta$  = regression coefficient, SE = standard error, *p* = probability, BIC = Bayesian Information Criterion, AIC = Akaike Information Criterion,  $\chi^2$  = chi-square, df = degrees of freedom, and  $r^2$  = *r*-squared

would most likely have access to the appropriate documentation for their psychological disorder as well. To encourage students not currently taking medication or receiving therapy, disability service providers could emphasize in their documentation that they do not comment on the medication or therapy status of students as that is between the student and their health care provider. We could speculate that a student who is not currently taking medication or receiving therapy might feel that they are not eligible for services for their disability.

Interestingly, self-reported GPA was not significantly associated with being more likely to register for accommodations. Given the variability of severity of disorders and the selection bias of those students who register for accommodations, this finding was not surprising either. We could speculate that students with more severe psychological disorders may simply be more likely to register and request accommodations because they have a more pressing need for accommodations versus students with less severe psychological disorders. We speculate that students with more severe psychological disorders may struggle more academically given that the severity of their disorder can interrupt the routine and structure of their day. So, the severity of their disorder may be related to being more likely to register, but may not translate to an improved GPA, thus a non-significant relationship.

Conversely, students with less severe psychological disorders may have less need for accommodations and because of this reduced severity also do better in terms of GPA. The issue of selection bias in who registers for accommodations and subsequent relationship with GPA appears to be particularly confounded among students with psychological disorders. For instance, students with visual impairments may have to register and request accommodations or else experience a negative impact on their GPA since they will not be able to access typical print materials. A student with a psychological disorder can decide to take the risk of not registering for accommodations and still be able to access the materials. In particular, results of the current study indicated that students with ADHD, bipolar, eating disorder, personality disorder, and other psychological disorder (e.g., dissociative disorders, paraphilic disorders, and neurocognitive disorders) were all significantly less likely to register for accommodations than all other psychological disorders. Students with neurodevelopmental disorders such as ASD were significantly more likely to register for accommodations, which may be the result of less perceived stigma or less concern on the part of individuals with ASD with perceived stigma. In-

deed, Soffer and Argaman-Danos (2021) found that self-identified ASD was not significantly associated with more perceived stigma or lower self-esteem.

Future research should consider examining attitudes toward requesting accommodations (that included attitudes towards disclosure) among students with psychological disorders. It should be noted that this unwillingness to disclose one's disability in order to register for accommodations has been associated with decreased help-seeking behaviors (Fleming et al., 2018). These attitudes have been found to be predictive of students subsequently requesting accommodations (Barnard-Brak et al., 2009). The current study does not examine these attitudes as the data set was archival in nature, but future research should consider an examination of attitudes toward requesting accommodations (Barnard-Brak et al., 2010) in relation to perceived stigma or negative perception in particular. Additionally, this relationship should be examined with respect to online versus face-to-face courses given the differences found in the experience of the accommodations process between online versus face-to-face courses by students with disabilities (Barnard-Brak & Sulak, 2010).

From the point of view of practice, Biebel et al. (2018) identified several approaches to help students with psychological disorders in particular at postsecondary institutions. For instance, institutional staff can facilitate the implementation of classroom accommodations for students who may have a particular difficulty in self-disclosure (Biebel et al., 2018). Additionally, access to other peers with psychological disorders who are students at the institution can build authentic supportive, mentoring relationships (Biebel et al., 2018). Finally, institutions of higher education can better incorporate the voices of these students to improve a sense of belonging, thus increasing the likelihood of accessing services and retaining students (Biebel et al., 2018). One way to incorporate the representation of students with disabilities may be their inclusion in campus committees in either having a voting or *ex officio* status. Students with disabilities may or may not be willing to participate in various campus committees, but could discuss mental health awareness anonymously via surveys of student satisfaction with disability services and the campus climate as a whole. Ultimately, the incorporation of the voices of students with disabilities should be intentional on the part of institutions of higher education to promote inclusivity.

Several limitations were revealed in the current study. The current study consisted of students who self-identified as having a psychological disability in participating in the Healthy Minds Study. This sam-

ple may not be representative of students with psychological disabilities as a whole as an unknown number of students with psychological disabilities may choose not to self-identify on even an anonymous, online survey such as the Healthy Minds Study. Another limitation is that we are speculating that students with more severe psychological disorders will have less need for accommodations than students with less severe or more mild psychological disorders. We could find no study in the extant literature that examines whether severity of a psychological disorder was related to registering for accommodations. Finally, another limitation is that we assume that stigma is present in this sample of students with psychological disorders, but perceived stigma was not measured in relation to the sample. We can infer from previous literature that individuals with psychological disorders do experience stigma but not the degree of stigma or with respect to which disorders.

In conclusion, the results of the current study found that approximately 41% of students with psychological disorders was registered for accommodations at their institution of higher education, which was consistent to the overall rate of registration among college students with disabilities (~ 35%; Newman & Madaus, 2015). However, in examining specific psychological disorders (see Table 1 for percentages), students with ADHD, bipolar, eating disorder, personality disorder, and other psychological disorders were all significantly less likely to register for accommodations. So, while the rate of registration among students with psychological disorders was consistent with the overall rate of registration, certain specific psychological disorders were revealed to have discrepancies in registration for accommodations. For instance, only 8% of students with bipolar and related disorders reported as registering for accommodations at the institution of higher education. Future research should focus on these specific populations of students according to psychological disorder.

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# Recent College Graduates with Disabilities: Higher Education Experiences and Transition to Employment

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## Abstract

Although the well-known employment gap between people with and without disabilities persists, employment prospects are more favorable, in general, for individuals with college degrees. In the 30 years since the passage of the Americans with Disabilities Act, the number of disabled people who attend college has steadily risen. This study investigated how college characteristics and engagement in career preparation activities during college affected the transition to work and employment outcomes of recent college graduates, comparing the experiences of people with and without disabilities. A convenience sample of  $n = 4,659$  U.S. residents ages 20 to 35 who had completed their first undergraduate degree within the last 5 years responded to an online survey about college and work. Results showed that recent college graduates with disabilities engaged in academic and career preparation services at least as much as their peers without disabilities. After college, 80% of recent graduates with and without disabilities were currently employed at the time of the survey. Yet, inequities in the type and quality of employment were evident. Recent disabled graduates were less likely than recent non-disabled graduates to work at a job that was related to their college degree or to hold regular, permanent positions. Disability services educators can contribute to positive post-college employment outcomes by encouraging college students with disabilities to engage in career preparation activities during college and helping to ensure that such services and activities are appropriately accessible for all.

*Keywords:* recent college graduates, employment, career services, internships, disability

Recent decades, since the passage of the Americans with Disabilities Act of 1990 (ADA), have seen a large increase in the number of people with disabilities who attend college (Grigal et al., 2011). During the 1995-96 academic year, approximately six percent of undergraduates reported having a disability (Horn & Berktold, 1999). Twenty years later, undergraduates with self-reported disabilities had risen to more than 19% (National Science Foundation, 2019). Disabled people now comprise nearly 12% of college graduates in the United States (Courtney-Long et al., 2015). This increase is good news for many reasons, one of which is that educational attainment is associated with both gainful employment and earning potential (Carnevale et al., 2013).

Although the employment gap between people with and without disabilities persists, employment prospects are more favorable, in general, for individuals with college degrees (Abel & Dietz, 2014; Carnevale et al., 2011; Oreopoulos & Petronijevic, 2013). Among those with jobs, disabled people tend to earn less than non-disabled people (Houtenville & Boege, 2019); however, higher education can facilitate access to higher-paying occupations for people with certain types of disabilities (Maroto & Pettinichhio, 2014). This suggests that even with the rising costs of higher education, college may still provide good returns on investment for people with disabilities.

In fact, although a recent U.S. jobs report shows that the labor force participation rate of working age

people with disabilities (33.7%) was substantially lower than that of people without disabilities (76.2%; U.S. Department of Labor, 2021), the gap significantly narrows when looking specifically at college graduates. Among working-age college graduates with disabilities, the labor force participation rate was 89.9% compared to 92.5% of college graduates without disabilities (National Science Foundation, 2017). When further restricting the age range to college graduates under 35 years old, the disparity is eliminated, and both groups, with and without disabilities, exhibit a labor force participation rate of 93% (National Science Foundation, 2017). These figures not only highlight the importance of higher education for disabled people, but also they allude to the potential impact of growing up and attending school as part of the ADA generation.

Despite the suggestion that college attendance rates are improving, relatively little is known about the college experiences of students with disabilities. Some studies have looked at disabled students' engagement with disability-specific services and accommodations procedures in college (Aquino & Bittinger, 2019; Barnard-Brak et al., 2010; Fichten et al., 2003; Hong, 2015; Marshak et al., 2010). Fichten et al. (2003) found that disabled students in community college who registered for disability services were more likely to succeed in school. However, other research showed that a majority (59%) of postsecondary students who had identified as having a disability in the first wave of a study had unidentified by the second wave two years later (Aquino & Bittinger, 2019), possibly to minimize stigma and counteract a decreased sense of belonging.

As to general aspects of college life, community college students with and without disabilities have been found to experience similar levels of satisfaction and dissatisfaction with the ups and downs of college, such as good or bad professors, difficult or boring classes, course schedules, motivation to study, and making friends (Fichten et al., 2012). College students with disabilities face barriers including the need for more computer training, difficulty with physical access to campus buildings, and lack of confidence in disability services offices' understanding of disabled students' lived experience (Gelbar et al., 2015). To combat these barriers, some promising practices have been tested, and results point to the effectiveness of individualized, student-centered services (Pillette, 2019). For example, a small-scale study of an internship program designed specifically for college students with physical disabilities showed positive results related to both job skills and soft skills, such as networking (DiYenno et al., 2019). Yet,

a recent systematic review of predictors of success for disabled college students noted that insufficient studies exist to form an evidence base in support of these and other promising practices (Madaus et al., 2020). No recent studies report on disabled college students' use of career services, career-related internships, or other career preparation activities that are not specific to disability-related services.

Similarly, although much is known about on-the-job experiences, job satisfaction, and job quality among people with disabilities, studies reporting on the effects of education on these employment outcomes more often contrast individuals with or without a high school diploma rather than with or without a college degree. In general, these studies show that disabled people experience many barriers to employment (Sundar et al., 2018), are less likely to work full time and access the employment benefits associated with full-time employment (Brucker & Henly, 2019), and experience less job satisfaction (Brooks, 2019; Sundar & Brucker, 2019). Specifically among college graduates, Gillies (2012) noted that university graduates with disabilities also faced a variety of structural and attitudinal barriers when looking for work, and many graduates who were employed expressed dissatisfaction because they had expected better jobs due to their degrees. While, in general, underemployment is not necessarily unusual among recent college graduates (Abel et al., 2014), recent graduates with disabilities are less likely than those without disabilities to work in jobs that closely relate to their fields of study (Fichten et al., 2012). College graduates with disabilities are also more likely than those without disabilities to work in occupations that do not require a college degree (Maroto & Pettinicchio, 2014).

In short, few published studies to date have looked at the experiences of recent college graduates with disabilities as they transition to work (Moore & Schelling, 2015). Instead, researchers have regarded postsecondary education and employment as separate options along an individuals' path after high school (Hetherington et al., 2010), or studies have focused on expanding higher education options for disabled people (Garrison-Wade, 2012), or estimating the prevalence of participation in any kind of postsecondary education (White et al., 2011). Kutscher et al. (2019) underscore the need for current research, pointing out that much existing knowledge about the career development of disabled college students is based on research that "was conducted decades ago and may no longer reflect contemporary student experiences" (p. 4). Addressing this gap, the authors fielded the 2020 Kessler Foundation National Employment and Disability Survey: Recent College Graduates to investi-

gate the association between key experiences during college and the transition to work and employment outcomes of recent graduates, comparing the experiences of people with and without disabilities.

### **Study Aims**

This study aimed to advance current knowledge about how experiences during college affect the transition to work and employment outcomes of recent college graduates, comparing the experiences of people with and without disabilities. Specific research questions (RQ) were as follows:

RQ1: How do the college experiences of recent college graduates with disabilities compare to those of recent college graduates without disabilities in terms of a) college characteristics; b) engagement with mentorship opportunities, and c) career preparation activities?

RQ2: How do the post-college employment experiences of recent graduates with disabilities compare to those of recent graduates without disabilities in terms of job characteristics and job satisfaction?

RQ3: To what extent is disability a factor in post-college employment outcomes, after adjusting for engagement with certain college experiences among disabled and non-disabled students?

To the authors' knowledge, this study comprises the first national survey in the United States to look across disability types with the purpose of comparing the higher education experiences and employment outcomes of recent college graduates with and without disabilities. Results from this study may help to inform higher education policies and procedures to improve the college experience for people with disabilities. In turn, this may increase the attractiveness of higher education as a rehabilitation intervention, strengthening the pathway to better jobs, earnings, and overall quality of life (O'Neill et al., 2015).

### **Methods**

This study was conducted using standard, replicable survey practices. In February and March 2020, adults with and without disabilities in the US were invited to take the survey as part of Qualtrics and partners' general population panel. Qualtrics maintains panels of potential participants who are willing to answer surveys in exchange for a reward or incentive decided on and allocated by the panel owner (i.e., Qualtrics). Researchers can purchase samples from these panels to provide data in response to surveys of

their own design. Incentives for participation such as cash payments, free downloads, and/or membership points were decided and offered by Qualtrics and its partner organizations.

To meet inclusion criteria for the present research, respondents had to be ages 20 to 35, U.S. residents who attended college in the U.S., graduated with their first associate degree or higher in the previous 5 years, and provided informed consent in accordance with protocols of the researchers' university Institutional Review Board. The researchers established a quota on the number of people without disabilities who could respond to the survey so that roughly half of the sample would be people with one or more self-identified disabilities. Because the survey did not ascertain individual respondents' preferences regarding the use of person-first or identity-first language to refer to disabled people, this manuscript alternates both styles to show respect and acknowledge the strengths of each linguistic approach.

### **Participants**

Participants included  $n=4,659$  recent college graduates. During the five-week study period, a total of 13,857 individuals accessed the survey. Of these, 5,531 met the inclusion criteria. Of those who met the inclusion criteria, 801 failed at least one of two quality control checks for attention or rushing through the survey. Quality control checks are meant to exclude respondents who answer haphazardly without reading the questions (e.g., "For quality control, please select 'strongly agree' for this item."). Another 71 were over quota in either the disability or no-disability group, and their responses were suppressed. The remaining 4,659 comprised the analytic sample for this study. Of these, 2,327 reported at least one disability.

### **Measures**

The survey instrument was developed by a team of researchers with expertise in disability measurement, education, transition, and employment. Relevant items were borrowed from the National Survey of College Graduates (National Science Foundation, 2019), the American Community Survey, and the Current Population Survey to enhance validity. Items not borrowed from national surveys were written by core members of the research team and then discussed and vetted with the larger team of experts. When the final survey was launched, data collection was paused after about 500 responses were received, and data were reviewed to consider the instrument's face validity and ensure no serious issues with the survey flow. Median time to complete the survey was 12 minutes. Survey topics included participants' sociodemographic infor-

mation, characteristics of the colleges and universities attended, type of degree and major field of study, engagement in career preparation activities during college, post-graduation employment outcomes, and job characteristics.

### ***Sociodemographics***

Participants responded to multiple choice items to indicate their age, race (White, Black or African American, American Indian or Alaska Native, Asian, Hawaiian or Other Pacific Islander, or other), gender (man, woman, transgender, non-binary, or other), ethnicity (Hispanic / Spanish or not), total household income before taxes, and current state of residence. Disability was assessed with 10 items. The first six questions asked about serious difficulty hearing, seeing, ambulation (two questions), upper body mobility and articulation (i.e., grasping, bending, lifting), and cognition (i.e., concentrating, remembering, making decisions). Additional, sequential prompts came next. Participants who said no to the cognitive disability question were asked whether they had a condition that made it difficult for them to learn (e.g., ADD, ADHD, dyslexia). If they answered no, they were asked whether they had any psychological or mental health conditions (e.g., anxiety, depression, bipolar disorder, substance abuse). If they answered no, they were asked whether they had an intellectual or developmental disability (e.g., Down syndrome, autism). Finally, if respondents answered no to all previous disability questions, they were asked whether they had any other kind of disability and, if so, to indicate what the disability was.

There are pros and cons to this approach to measuring disability. On the positive side, including the four functional items from the common six-question sequence used by the American Community Survey, the Current Population Survey, the Behavioral Risk Factor Surveillance Survey and many other federal instruments (Centers for Disease Control and Prevention [CDC], 2020) allows for some subpopulation comparisons of this study's findings with national benchmarks. Because items from the six-question sequence have been shown to miss some individuals with disabilities (Burkhauser et al., 2014), the additional prompts are helpful for representing people who do not self-identify with those items but do see themselves as having a specific difficulty. For example, some people might answer yes to the cognitive disability question because they have a learning disability that makes it difficult to concentrate, remember, or make decisions. Other people might respond no to the cognitive question and still respond affirmatively to the learning disability prompt. On the negative side,

the sequential nature of the prompts does not allow for analysis of the potential overlap between existing federally-used questions and the more specific disability types included in this study's follow-up questions. In other words, sequential prompting is helpful when researchers want to estimate who is "missed" by, for instance, the cognitive question, but it does not provide information about how many individuals would answer yes to both. As another possible limitation, the wording of the additional prompts has not been standardized among researchers, nor has it been adopted by any national surveys, so the ability to compare findings across studies in relation to these questions is lacking.

### ***College and Study Characteristics***

Participants responded to multiple choice items to indicate their highest educational attainment (i.e., associate, bachelor's, master's). If they had received more than one undergraduate or advanced degree, they were asked to answer the survey while thinking about their first undergraduate degree. Multiple choice items were also used to assess the type of institution from which they graduated (i.e., community college, state college or university, private college or university), and participants' major field of study.

### ***Career Preparation Activities***

Career preparation activities comprised engagement with academic advising, career services, and jobs or internships held during college. Participants responded to a one-item checklist to indicate from which sources they had received academic advising: an advising center, an assigned faculty advisor or mentor, an informal faculty advisor or mentor, an assigned peer advisor or mentor, or an informal peer advisor or mentor. They answered a single item checklist to indicate their receipt of career services: meeting career counselors, attending job fairs, receiving training or assistance with resume writing or mock interviews, and career explorations, such as job shadowing. Participants were asked about the following employment activities they may have engaged in as undergraduates: working for wages at a typical job, self-employment, career-related internships or field placement, and volunteer work.

### ***Post-College Employment Outcomes***

Participants answered one yes-no item to indicate whether they were currently employed at the time of the survey. If so, they selected the sector in which they were working from a four-item checklist (i.e., government, private for-profit, self-employed, or nonprofit). A binary (yes-no) item asked whether or

not they had made the job connection when they were in college getting their first undergraduate degree. Those who were currently employed also answered a three-point item to share whether or not their current job was related to their undergraduate degree (i.e., closely related, somewhat related, not related).

Using open-ended responses, participants typed the average number of hours they worked per week and their hourly wages. A five-item checklist was used to assess their current working arrangements using the following options: independent contractor, consultant, or freelancer; on-call, working only when called; paid by a temporary agency; work for a contractor who provides workers or services; or regular, permanent employee. Finally, job satisfaction was measured with a four-point checklist borrowed from the National Survey of College Graduates (National Science Foundation, 2019). Participants indicated how satisfied they were (i.e., not all satisfied, not very satisfied, somewhat satisfied, or very satisfied) with 11 different job elements: salary, benefits, job security, location (i.e., easy to get to), opportunities for advancement, the intellectual challenge, level of responsibility, degree of independence, supervisor support, relationships with coworkers, and contribution to society.

### Analytic Approach

To answer research questions R1 and R2, descriptive statistics including frequencies, chi square tests, and t-tests were computed to describe sample characteristics, college characteristics, career preparation activities, and employment outcomes, and to test for statistically significant differences between disabled and non-disabled graduates. Where necessary, missing variables were excluded pairwise. Research question R3 was addressed using logistic regression. Predictor variables were dummy coded and entered in a single step, and odds ratios, standard errors, confidence intervals, and p values were examined for statistical significance and interpreted.

## Results

### Sociodemographics

Of the  $n = 4,659$  participants in the analytic sample, 49.9% ( $n = 2,327$ ) had one or more disabilities. Sociodemographic characteristics are included in Table 1. Among people with only one disability, the most prevalent types were mental health conditions ( $n = 631$ , 13.5%), followed by cognitive disabilities ( $n = 347$ , 7.5%) and learning disabilities ( $n = 330$ , 7.1%). Nearly one in five ( $n = 828$ , 17.8%) participants with disabilities reported more than one disability type.

As shown in Table 1, gender differed significantly by disability status ( $\chi^2(4) = 30.96$ ,  $p < .001$ ); study participants with disabilities were more likely than those without disabilities to be female ( $n = 1,199$ , 51.6%) or transgender, non-binary, or other gender ( $n = 52$ , 2.2%). Disabled participants were more likely ( $\chi^2(3) = 29.95$ ,  $p < .001$ ) to be White, non-Hispanic ( $n = 1,496$ , 64.4%) or Hispanic ( $n = 413$ , 17.8%) and less likely to be Black ( $n = 218$ , 9.4%), other or multi non-Hispanic race ( $n = 195$ , 8.4%). People with disabilities also reported lower incomes than people without disabilities ( $\chi^2(6) = 35.17$ ,  $p < .001$ ). For example, disabled participants were more likely to have annual household incomes less than \$15,000 ( $n = 175$ , 7.8%) and less likely to have incomes of \$100,000 or more ( $n = 401$ , 17.8%).

Neither age nor region of residence differed by disability status. Participants were most likely to be ages 25 to 29 (approximately 42% of people with and without disabilities) and least likely to be ages 30-35 (approximately 25% of people with and without disabilities). Most participants with and without disabilities resided in the South census region (approximately 37%), and about 20% lived in each of the other three census regions (West, Northeast, Midwest).

### College and Study Characteristics

To answer research question RQ1, Tables 2 and 3 contain a summary of data regarding college and study characteristics as well as career preparation activities by recent disabled and non-disabled graduates. Most participants with and without disabilities reported a bachelor's degree as their highest educational attainment to date ( $n = 1,425$ , 61.2% with disabilities;  $n = 1,475$ , 63.3% without disabilities). More details appear in Table 2. Disabled people were significantly more likely ( $\chi^2(2) = 8.74$ ,  $p < .05$ ) to report an associate degree as their highest degree ( $n = 443$ , 19.0%). About 20% of people with and without disabilities had a master's degree or higher. Disabled participants were more likely ( $\chi^2(3) = 14.55$ ,  $p < .01$ ) to have graduated from community college ( $n = 425$ , 18.4%) and less likely to have attended state colleges or universities ( $n = 1,287$ , 55.7%). About 25% of participants with and without disabilities graduated from private colleges or universities.

Table 2 also shows participants' major field of study during college. The most common majors for people with and without disabilities were business management and administration and health and related sciences. Disabled people were significantly less likely to have studied business management ( $n = 420$ , 18.1%;  $t_{(4643)} = 3.83$ ,  $p < .001$ ) and engineering ( $n = 176$ , 7.6%;  $t_{(4643)} = 4.24$ ,  $p < .001$ ). They were more

**Table 1***Sociodemographic Characteristics of Recent College Graduates with and without Disabilities*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Total	2,327	100.0	2,332	100.0	
Gender					***
Man	1,075	46.22	1,226	52.64	
Woman	1,199	51.55	1,082	46.46	
Transgender, non-binary, or other	52	2.23	21	0.90	
Don't know / refused	1	--	3	--	
Age					
20 – 24	775	33.30	737	31.60	
25 – 29	965	41.47	991	42.50	
30 – 35	587	25.23	604	25.90	
Race					***
White only, non-Hispanic	1,496	64.43	1,381	59.55	
Black only, non-Hispanic	218	9.39	303	13.07	
Hispanic / Latinx	413	17.79	374	16.13	
Other or multi-race, non-Hispanic	195	8.40	261	11.25	
Don't know / refused	5	--	13	--	
Annual household income					***
Less than \$15,000	175	7.76	133	5.87	
\$15,000 – 29,999	313	13.88	225	9.94	
\$30,000 – 44,999	376	16.67	336	14.84	
\$45,000 – 59,999	350	15.52	385	17.01	
\$60,000 – 74,999	306	13.57	332	14.66	
\$75,000 – 99,999	334	14.81	363	16.03	
\$100,000 and up	401	17.78	490	21.64	
Don't know / refused	72	--	68	--	
Region of residence					
Northeast	472	20.33	494	21.25	
Midwest	471	20.28	454	19.53	
South	874	37.64	876	37.68	
West	505	21.75	501	21.55	
Don't know / refused	5	--	7	--	
Disability type					
Hearing only	19	0.41			
Vision only	74	1.59			
Lower mobility only	20	0.43			
Upper mobility only	27	0.58			
Cognition only	347	7.45			
Learning only	330	7.08			

(Table 1 continued)

Mental health only	631	13.54
Other disability only	51	1.09
Multiple disabilities	828	17.77

Note. Asterisks denote statistically significant results of chi-square tests; values provided in text.  
 $*p < .05$ .  $**p < .01$ .  $***p < .001$

**Table 2***College and Study Characteristics, by Disability Type*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Total	2,327	100.0	2,332	100.0	
Highest degree					*
Associate	443	19.04	368	15.78	
Bachelor's	1,425	61.24	1,475	63.25	
Master's or higher	459	19.72	489	20.97	
Type of institution					**
Community college	425	18.39	338	14.66	
State college or university	1,287	55.69	1,392	60.36	
Private college or university	599	25.92	576	24.98	
Don't know / refused	16	--	26	--	
Major field of study <sup>a</sup>					
Business management	420	18.08	525	22.61	***
Health and related sciences	267	11.49	296	12.75	
Computer and information sciences	223	9.60	258	11.11	
Biological/life sciences	68	2.92	48	2.06	
Education	193	8.31	158	6.80	
Psychology	203	8.74	150	6.46	**
Communication	179	7.71	134	5.77	**
Engineering	176	7.58	260	11.20	***
Criminal justice/protective services	90	3.87	88	3.79	
Visual and performing arts	126	5.42	64	2.76	***
Social science and history	109	4.69	82	3.53	*
Liberal arts	104	4.48	61	2.63	**
Other	199	8.57	211	8.66	
Don't know / refused	4	--	10	--	

<sup>a</sup> Because some participants had more than one major, column totals may exceed 100%.

Note. Asterisks denote statistically significant results of chi-square and *t*-tests; values provided in text.  
 $*p < .05$ .  $**p < .01$ .  $***p < .001$

likely than people without disabilities to have majored in psychology ( $n = 203$ , 8.7%;  $t_{(4643)} = -2.93$ ,  $p < .01$ ), communication ( $n = 179$ , 7.7%;  $t_{(4643)} = -2.53$ ,  $p < .01$ ), visual and performing arts ( $n = 126$ , 5.4%;  $t_{(4643)} = -4.60$ ,  $p < .001$ ), social sciences and history ( $n = 109$ , 4.7%;  $t_{(4643)} = -2.00$ ,  $p < .05$ ), and liberal arts ( $n = 104$ , 4.5%;  $t_{(4643)} = -3.41$ ,  $p < .01$ ).

### Career Preparation Activities

Table 3 shows a summary of advising and career preparation activities during college among participants with and without disabilities. Just under half of all participants reported that they had an assigned faculty advisor or mentor. Disabled people were more likely to say that they had used an advising center ( $n = 953$ , 41.0%;  $t_{(4657)} = -2.64$ ,  $p < .01$ ). As undergraduates, disabled participants were also more likely to have had informal faculty advisors or mentors ( $n = 482$ , 20.7%;  $t_{(4657)} = -5.10$ ,  $p < .001$ ) and informal peer advisors or mentors ( $n = 235$ , 10.1%;  $t_{(4657)} = -2.05$ ,  $p < .05$ ).

There were no statistically significant, disability-related differences in the utilization of career services among the recent graduates. Nearly three-quarters of the sample reported engaging with at least some career services during college. The most common services, used by approximately 40% of participants, were attending job fairs or meeting with job recruiters on campus; and meeting with career counselors. About one-third received assistance or training with resume or cover letter writing, and more than one in five had interview training or participated in mock interviews.

Recent disabled graduates were more likely than those without disabilities to have done career-related internships or field placements ( $n = 1,590$ , 68.3%;  $t_{(4657)} = -2.62$ ,  $p < .01$ ). Just over two-thirds of participants with and without disabilities had been employed for wages at typical jobs during college. People with disabilities were more likely than those without to have been self-employed ( $n = 244$ , 10.5%;  $t_{(4657)} = -2.01$ ,  $p < .05$ ) or to have done volunteer work ( $n = 281$ , 12.1%;  $t_{(4657)} = -2.52$ ,  $p < .05$ ) during college.

### Post-College Employment Outcomes

To answer research question RQ2, Table 4 summarizes the employment outcomes of recent college graduates by disability status. Among participants with and without disabilities, 80% were currently employed at the time of the survey. Just over 40% of recent graduates with and without disabilities reported having made their employment connection during college. Currently employed participants with disabilities were significantly less likely to be working

at jobs that closely related to their fields of study ( $n = 1,420$ , 76.2%;  $t_{(3917)} = 3.29$ ,  $p < .01$ ). Disabled participants were less likely than non-disabled participants ( $\chi^2(3) = 14.11$ ,  $p < .01$ ) to be working in the private sector at for-profit companies ( $n = 1,063$ , 57.1%) and more likely to be working in government ( $n = 379$ , 20.3%), nonprofit organizations ( $n = 212$ , 11.4%) or self-employment ( $n = 209$ , 11.2%).

Job characteristics, such as hours worked per week, hourly wages, and current working arrangements, differed significantly by disability status. Compared to those without disabilities, recent disabled graduates were less likely to work full time (40 or more hours per week;  $n = 1,003$ , 54.4%) and more likely to work fewer than 28 hours per week ( $n = 444$ , 24.1%). Participants with disabilities were more likely to earn less than \$15.00 per hour ( $n = 557$ , 32.0%). A chi-squared test showed a significant difference in current working arrangements by disability status ( $\chi^2(4) = 18.22$ ,  $p < .01$ ); disabled participants were more likely to work as consultants or freelancers ( $n = 284$ , 15.6%), on-call ( $n = 143$ , 7.8%), or as temporary employees ( $n = 105$ , 5.8%) and less likely as regular, permanent employees ( $n = 1,201$ , 65.8%).

People with disabilities were less likely to report being at least somewhat satisfied with every element of their jobs than people without disabilities. The most significant differences related to less satisfaction with job security ( $n = 1,472$ , 79.2%;  $t_{(3710)} = 5.56$ ,  $p < .001$ ) and supervisor support ( $n = 1,517$ , 81.6%;  $t_{(3709)} = 4.42$ ,  $p < .001$ ). These were followed by lower satisfaction with salary ( $n = 1,238$ , 66.5%;  $t_{(3712)} = 2.74$ ,  $p < .01$ ), benefits ( $n = 1,293$ , 69.4%;  $t_{(3711)} = 3.13$ ,  $p < .01$ ), ease of access to job location ( $n = 1,543$ , 83.1%;  $t_{(3704)} = 2.78$ ,  $p < .01$ ), opportunities for advancement ( $n = 1,191$ , 64.1%;  $t_{(3709)} = 3.30$ ,  $p < .01$ ), the intellectual challenge of the job ( $n = 1,288$ , 69.3%;  $t_{(3712)} = 2.96$ ,  $p < .01$ ), degree of independence ( $n = 1,533$ , 82.4%;  $t_{(3711)} = 3.01$ ,  $p < .01$ ), and relationships with coworkers ( $n = 1,413$ , 75.9%;  $t_{(3710)} = 3.48$ ,  $p < .01$ ). Disabled graduates were also less satisfied than those without disabilities in the extent to which their jobs allowed them to make a contribution to society ( $n = 1,391$ , 74.8%;  $t_{(3707)} = 2.54$ ,  $p < .05$ ).

### Effects of Participant Characteristics and College Experiences on Employment Outcomes

To answer research question RQ3, Table 5 shows the results of logistic regression estimates of the association between participant sociodemographics and college experiences with (a) current employment status, (b) establishment of the employment connection during college, and (c) relation of the job to the participants' field of study. The first logistic regression in-

**Table 3***Career Preparation Activities, by Disability Type*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Academic advising					
Assigned faculty advisor or mentor	1,135	48.78	1,143	49.01	
Advising center	953	40.95	867	37.18	**
Informal faculty advisor or mentor	482	20.71	350	15.01	***
Assigned peer advisor or mentor	374	16.07	377	16.17	
Informal peer advisor or mentor	235	10.10	195	8.36	*
No academic advising	283	12.16	384	16.47	
Career services					
Job fair / job recruiters on campus	928	39.88	992	42.50	
Meet with career counselors	934	40.14	875	37.52	
Assistance or training with resume or cover letter writing	773	33.22	758	32.50	
Interview training or mock interviews	512	22.00	520	22.30	
Career explorations	517	22.22	480	20.58	
Other career services	14	0.60	13	0.56	
No career services	528	22.69	544	23.33	
Career-related internships or field placement	1,590	68.33	1,509	64.71	**
Jobs held during college					
Employed for wages	1,588	68.24	1,555	66.68	
Self-employed	244	10.49	204	8.75	*
Volunteer work	281	12.08	228	9.78	*
No employment during college	477	20.50	535	22.94	*

*Note.* Asterisks denote statistically significant results of chi-square and *t*-tests; values provided in text. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

indicated a significant association of college experiences and age on current employment status at the time of the survey ( $\chi^2(12) = 298.93, p < .001$ ). Having an associate degree was associated with lower likelihood of being employed at the time of the survey (OR = 0.85, *p* < .001), while participation in career-related internships (OR = 1.89, *p* < .001), working during college (OR = 2.44, *p* < .001), and being older (OR = 1.50, *p* < .001) all were associated with greater odds of employment after graduation. Disability was not a significant predictor of current employment status after college.

The second logistic regression showed a significant association of institution type, college experiences, and gender on the likelihood that the connection

to the current job was made during college ( $\chi^2(9) = 340.48, p < .001$ ). Among those who were currently employed, being female was associated with lower odds of making the job connection during college (OR = 0.63, *p* < .001). Graduating community college (OR = 1.51, *p* < .001), engaging with any academic advising (OR = 1.37, *p* = .005), receiving any career services (OR = 1.76, *p* < .001), and completing a career-related internship (OR = 2.48, *p* < .001) each were associated with greater odds of making the job connection during undergraduate study. Among the recent graduates who were currently employed, disability was not a significant predictor of having made the job connection during college.

**Table 4***Post-College Employment Outcomes, by Disability Type*

	Disability		No Disability		
	<i>n</i>	%	<i>n</i>	%	
Currently employed	1,863	80.06	1,856	79.59	
Job connection made in college	839	45.11	797	42.99	
Job closely related to field of study	1,420	76.22	1,497	80.65	**
Sector					**
Government	379	20.34	338	18.21	
Private, for-profit	1,063	57.06	1,167	62.88	
Self-employed	209	11.22	184	9.91	
Nonprofit	212	11.38	167	9.00	
Hours worked per week					***
40 or more	1,003	54.36	1,162	62.84	
28-39	398	21.57	379	20.50	
< 28	444	24.07	308	16.66	
Missing	18	--	7	--	
Hourly wage					***
≤ \$7.25	64	3.68	39	2.24	
\$7.26 - 14.99	493	28.32	361	20.77	
\$15.00 - 21.99	567	32.57	545	31.36	
\$22.00 - 40.00	470	27.00	613	35.27	
> \$40.00	147	8.44	180	10.36	
Missing	122	--	118	--	
Current working arrangement					
Independent consultant, freelancer	284	15.55	249	13.91	
On-call	143	7.83	99	5.53	
Temporary agency	105	5.75	80	4.47	
Work for a contractor of workers or services	93	5.09	75	4.19	
Regular, permanent employee	1,201	65.77	1,287	71.90	
Missing	37	--	66	--	
Satisfaction with job elements ( <i>somewhat or very satisfied</i> )					
Salary	1,238	66.53	1,310	70.69	**
Benefits	1,293	69.44	1,371	74.07	**
Job security	1,472	79.20	1,595	86.08	***
Job location (easy to get to)	1,543	83.09	1,597	86.37	**
Opportunities for advancement	1,191	64.07	1,281	69.17	**
Intellectual challenge	1,288	69.25	1,365	73.63	**
Level of responsibility	1,475	79.26	1,535	82.88	**
Degree of independence	1,533	82.42	1,594	86.02	**
Supervisor support	1,517	81.61	1,609	86.88	***
Relationships with coworkers	1,413	75.89	1,491	80.60	**
Contribution to society	1,391	74.79	1,448	78.31	*

Note. Asterisks denote statistically significant results of chi-square and *t*-tests; values provided in text.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

**Table 5**

*Logistic Regression: Effect of Student Characteristics and College Experiences on Post-College Employment Outcomes*

Fixed effects	OR	SE	95% CI		p
			LL	UL	
Currently employed (at time of survey)					
Community college <sup>a</sup>	1.05	0.14	0.81	1.36	0.728
Private 4-year college <sup>b</sup>	0.85	0.08	0.71	1.02	0.086
Associate degree <sup>c</sup>	0.51	0.06	0.40	0.65	0.001
Advanced degree <sup>d</sup>	1.07	1.11	0.87	1.31	0.547
Any academic advising <sup>e</sup>	1.08	0.12	0.87	1.33	0.499
Any career services <sup>e</sup>	1.08	0.10	0.90	1.29	0.434
Career-related internship <sup>e</sup>	1.89	0.16	1.60	2.23	0.001
Work during college <sup>e</sup>	2.44	0.20	2.07	2.87	0.001
Woman <sup>f</sup>	0.89	0.07	0.76	1.03	0.125
Non-binary, trans, or other gender <sup>g</sup>	0.73	0.20	0.42	1.26	0.258
Age <sup>h</sup>	1.50	0.12	1.28	1.75	0.001
Disability <sup>i</sup>	1.02	0.08	0.87	1.18	0.823
Job connection made in college					
Community college <sup>a</sup>	1.51	0.20	1.17	1.95	0.001
Private 4-year college <sup>b</sup>	0.91	0.08	0.77	1.07	0.244
Associate degree <sup>c</sup>	0.81	0.11	0.63	1.06	0.123
Advanced degree <sup>d</sup>	1.31	0.11	1.10	1.55	0.002
Any academic advising <sup>e</sup>	1.37	0.15	1.10	1.70	0.005
Any career services <sup>e</sup>	1.76	0.17	1.46	2.12	0.001
Career-related internship <sup>e</sup>	2.48	0.21	2.10	2.93	0.001
Work during college <sup>e</sup>	1.19	0.11	1.00	1.42	0.053
Woman <sup>f</sup>	0.63	0.05	0.55	0.73	0.001
Non-binary, trans, or other gender <sup>g</sup>	0.60	0.18	0.33	1.10	0.099
Age <sup>h</sup>	0.87	0.06	0.76	1.00	0.057
Disability <sup>i</sup>	1.04	0.07	0.91	1.20	0.530
Job related to field of study					
Community college <sup>a</sup>	1.21	0.19	0.90	1.64	0.211
Private 4-year college <sup>b</sup>	1.07	0.11	0.87	1.31	0.538
Associate degree <sup>c</sup>	0.56	0.08	0.42	0.75	0.001
Advanced degree <sup>d</sup>	3.33	0.50	2.48	4.48	0.001
Any academic advising <sup>e</sup>	1.15	0.14	0.91	1.46	0.255
Any career services <sup>e</sup>	1.33	0.14	1.09	1.63	0.004
Career-related internship <sup>e</sup>	2.49	0.23	2.08	2.97	0.001
Work during college <sup>e</sup>	0.98	0.11	0.79	1.23	0.889
Woman <sup>f</sup>	0.69	0.06	0.58	0.82	0.001

(Table 5 continued)

Non-binary, trans, or other gender <sup>g</sup>	0.35	0.11	0.19	0.63	0.001
Age <sup>h</sup>	1.14	0.10	0.97	1.35	0.120
Disability <sup>i</sup>	0.75	0.06	0.63	0.89	0.001

Note. OR = odds ratio; CI = confidence interval; *LL* = lower limit; *UL* = upper limit. *p* values < .05 appear in bold.

<sup>a</sup> 0 = community college, 1 = 4-year state or private college. <sup>b</sup> 0 = 4-year private college, 1 = community college or 4-year state university. <sup>c</sup> 0 = associate, 1 = bachelor's, master's or higher. <sup>d</sup> 0 = master's or higher, 1 = associate or bachelor's. <sup>e</sup> 0 = no, 1 = yes. <sup>f</sup> 0 = woman, 1 = man, non-binary, transgender, or other. <sup>g</sup> 0 = non-binary, transgender, or other, 1 = man or woman. <sup>h</sup> 0 = 20-26 years, 1 = 27-35 years. <sup>i</sup> 0 = no disability, 1 = any disability.

The third logistic regression indicated a significant association of educational attainment, experiences during college, and participant sociodemographic characteristics with the likelihood that the current job was related to the recent graduates' field of undergraduate study ( $\chi^2(9) = 382.44, p < .001$ ). Having a master's degree or higher (OR = 3.33,  $p < .001$ ), having received any career services (OR = 1.33,  $p = .004$ ), and participation in career-related internships (OR = 2.49,  $p < .001$ ) were associated with greater odds of working at a job related to one's field of study. Having an associate degree (OR = 0.56,  $p < .001$ ), being female (OR = 0.69,  $p < .001$ ) or other non-male gender (OR = 0.35,  $p < .001$ ), and having a disability (OR = 0.75,  $p < .001$ ) were each associated with lower odds of working in one's intended field.

### Discussion

This study aimed to investigate the college experiences, career preparation activities during college, and post-college employment outcomes of recent graduates with disabilities, comparing the results with those of recent college graduates without disabilities. At the time of the survey, all participants had earned their first undergraduate degree, associate or bachelor's, in the previous five years. All were between 20 and 35 years old. Several interesting findings emerged in answer to the study's research questions.

The first research question asked how college experiences of recent graduates with and without disabilities may have differed. Although most participants of the study had a bachelor's degree or higher, disabled graduates were more likely than non-disabled to have earned a two-year associate degree as their highest

degree. Similarly, though the majority of participants had attended state colleges and universities, proportionately more people with disabilities had graduated from community college. In logistic regression, higher degrees were associated with greater odds of post-college employment, greater odds of making an employment connection during college, and greater odds of working at a job that was related to one's field of study. Logistic regression also showed that attending a community college was associated with a greater likelihood of making a successful employment connection during college.

The second research question concerned how post-college employment experiences may have differed between disabled and non-disabled recent graduates. Regardless of disability status, the vast majority (80%) of study participants reported being currently employed at the time of the survey. This finding is consistent with estimates produced using the National Survey of College Graduates regarding the labor force participation rate of young adults ages 20 to 34, which showed 93% labor force participation regardless of disability status (National Science Foundation, 2017). Logistic regression revealed that several factors were associated with post-college employment for recent graduates with and without disabilities. The strongest associations showed that those who worked during college at a regular job for pay, were self-employed, or did volunteer work had 2.4 times greater odds of employment after graduation. Participation in career-related internships was associated with 1.9 times greater odds of current employment. Because disabled participants reported holding jobs during college at equivalent rates to those without disabilities, and they were more likely to have done

career-related internships as undergraduates, it is not surprising that they were as likely to be employed after college as their peers without disabilities.

Disabled participants were also as likely as non-disabled graduates to have made their current job connections during college. Again, career-related internships were the strongest predictor of making successful job connections, with 2.5 times greater odds of a job connection among those who had done internships. Engagement with academic advisors or mentors and using any college career services were both associated with better eventual job connections. Compared to non-disabled participants, disabled participants were equally likely to use career services, such as meeting with career counselors, attending job fairs or meeting job recruiters on campus, or getting training or assistance with resume or cover letter writing. People with disabilities were also equally likely to have assigned faculty advisors or mentors, and they were more likely than people without disabilities to have identified informal faculty and informal peer mentors.

Without detracting from these encouraging findings, it is important to note the positive bias inherent in this study. Because the sampling frame included only recent college graduates, the outcomes discussed here fail to reflect the experiences of people with and without disabilities who attend college without successfully completing a degree. Inequities may be greater among this subpopulation. This study revealed other disability-related inequities and a continuing need for improvement in some areas. For example, in answer to the third research question about the effect of disability on the association between college experiences and post-college employment, people with disabilities were less likely than people without disabilities to be working at jobs related to their field of study, despite their engagement with career services and participation in career-related internships. They were also significantly less likely to be hired as regular, permanent employees and more likely to work as independent consultants, temporary employees, or on an on-call basis. They worked fewer hours on average per week and earned lower hourly wages. Compared to people without disabilities, they experienced less satisfaction with all elements of their jobs, especially as related to job security and supervisor support.

There are several possible reasons for these inequities. First, disabled people were less likely than non-disabled people to major in business or science, technology, engineering, and math (STEM) fields. They were more likely to major in arts, liberal arts, social sciences, and psychology, which may offer fewer direct pathways to full-time employment for

those with undergraduate degrees (Carnevale et al., 2013). Second, people with disabilities sometimes have health issues that preclude them from seeking full-time employment or otherwise limit their earning potential (Schur, 2003). In general, health status may be a better predictor of job quality than disability (Brucker & Henly, 2019), as not all self-reported disability reveals information about a person's day-to-day health and functioning. Still, the fact that job satisfaction was lower among disabled participants suggests that not all of the employment inequities found in this study were a result of individual choice. Needing to work less or earn less in order to maintain essential benefits is a factor for many workers with disabilities. Also, general ableism and specific discrimination still exist in the job market and the workplace. Future research that is able to capture more elements of this dynamic while taking into account disability severity, potential limitation of work activities, and participants' job preferences would favorably build on this study's findings.

### **Limitations**

Several limitations to the present study must be noted. Though national in scope and sizable enough to allow robust comparisons between people with and without disabilities, the sample obtained was neither representative nor drawn by random selection. For this reason, due caution must be used when attempting to generalize the findings described here to the general population. As with all self-report studies, it is impossible to attest to the accuracy of participants' responses. Although Qualtrics uses a double verification process to ensure the identity of survey respondents, participants could have elected not to answer the questions honestly. To minimize the risk of inaccuracy, the researchers embedded both attention checks and speeding checks into the survey. Even if the participants did their best to answer honestly, the retrospective nature of the survey items introduced opportunities for error. Though respondents were asked to answer about their first undergraduate experiences, those with higher degrees may have had more difficulty recalling previous circumstances. Restricting participants to those who had graduated with their first undergraduate degree within the last five years was intended to minimize recall error; it is not possible to know the extent to which this effort succeeded.

As noted previously, this study has a positive bias in that it does not include participants who attended college but did not graduate. A limitation of this research is that it failed to capture information on how these successful students overcame barriers to partic-

ipation in career services, field placements, and work during and after college.

### Impact and Conclusions

Findings from this study have implications for policy and practice in higher education, secondary education, transition planning, and rehabilitation counseling. Primarily, this study adds to the evidence base that higher education pays off for disabled students. At 80%, the employment rate of recent college graduates with and without disabilities is both encouraging and equitable. College graduates with disabilities are engaging in career preparation activities at least as much as their peers without disabilities, and those activities are leading to successful post-college employment connections and jobs. Disability services educators may find that encouraging this kind of engagement among future college students is a good strategy to help to avoid the employment gap people with disabilities experience without college degrees. Making sure that career services, mentorship activities, and internship opportunities are accessible and incorporating best practices for inclusive instruction is also an important role. Several resources describe research-driven promising practices to engage college students in career preparation activities and bolster post-graduation employment equity. Collaboration among multiple stakeholders is a key suggestion (Pillette, 2019). For example, career services staff can work closely with campus disability offices, proactively reaching out to disabled students, ensuring that career services are offered in disability-competent ways, and making sure the people with disabilities are visible as mentors, guest speakers, and employer representatives (Parker et al., 2021). The National Association of Colleges and Employers also has a wealth of information about organizations that can help college services improve their accessibility and inclusion of students with different types of disabilities. For example, the College Autism Network helps career services professionals learn how best to support neurodiverse students (Gray, 2021). Academic advisors, career counselors, and disability services professionals may also wish to help college students with disabilities understand the potential link between their college major and possible career paths so that people with disabilities will have equivalent opportunities as those without disabilities to work in their chosen fields.

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# Does Inclusive Teaching Impact College Adjustment and Performance for Students With and Without Disabilities?

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## Abstract

The rise in numbers of postsecondary students who require adapted services underscores the need for inclusive teaching practices to help students with disabilities adjust and succeed. Despite the growth in studies on this topic, quantitative data are lacking on the prevalence of these practices in high school and college, and their predictive ability for student adjustment and academic performance. This repeated measures study involved students attending 10 colleges in the Province of Quebec (Canada), 42% of whom disclosed a disability at college entry. Students completed a battery of online questionnaires in October 2019 ( $n = 1,826$ ) and a second battery in April–May 2020 ( $n = 1,435$ ). They included assessments of teachers' use of inclusive teaching practices in high school and college, as well as student adjustment and academic performance in college. Results indicate that inclusive practices were perceived by students as not universally applied, and that their prevalence varied according to teaching level and disability status. While some inclusive practices positively predicted college adjustment and academic performance, others had negative effects on these outcomes. Results are discussed in light of the principles of Universal Design for Learning and with a view to developing inclusive teaching practices in high school and college.

*Keywords: disability in higher education, inclusive teaching, college adjustment, high school, college, academic performance*

In the past two decades, the number of students with disabilities (SWD) who attend postsecondary schools has grown significantly. The data from college and university support services in the U.S. and Canada suggest that about 10-20% of the total student population is currently receiving disability services (NCES, 2021; AQUICESH, 2020). However, this number includes only those students who receive the services, leaving out all those who decline to seek help. At college entry, this silent group is estimated at almost two-thirds the size of the population of students who were identified as disabled in high school (Gaudreault et al., 2018; Sanford et al., 2011; Newman et al., 2011).

In this context, and in view of the adaptation challenges that SWD must overcome (DuPaul et al., 2009; Nordstrom et al., 2014; Pievky & McGrath, 2018), many colleges are promoting and prioritizing inclusive teaching practices, particularly for newly arrived students. Inclusive teaching practices aim to adapt traditional curricula to better respond to diverse student needs by providing a variety of methods and materials for instruction, engagement, learning, and assessment (Gawronski et al., 2016; Orr & Hammig, 2009; Schreffler et al., 2019). Yet, despite the merits of these practices, few studies have documented their prevalence in college and their links with adjustment in SWD. Following Lombardi et al. (2011)

and Gawronski et al. (2016), the general objective of the present study was to describe inclusive teaching practices in high school and college as perceived by Quebec students and to determine their capacity to predict adjustment and academic performance in college. Below, we define inclusive teaching practices in detail, consider their prevalence, and examine their empirical relationships with various indicators of adjustment and academic performance.

### **Definition of Inclusive Teaching Practices**

Inclusive teaching practices are defined based on the principles of universal accessibility, known as Universal Design (UD). In the UD framework, physical and environmental barriers are removed to allow equal access for as many people with a disability as possible (Lombardi & Murray, 2011; Schreffler et al., 2019). When applied to teaching settings, one promising approach derived from UD principles is Universal Design for Learning (UDL) that aims to adapt courses by providing options to answer the needs of diverse students, and particularly SWD (Basham et al., 2020; Orr & Hammig, 2009; Schreffler et al., 2019). To this end, UDL-informed inclusive teaching practices are articulated around three main principles: multiple means of engagement, multiple means of representation, and multiple means of action and expression (Basham et al., 2020; Cumming & Rose, 2021; Schreffler et al., 2019). To foster engagement, the practices should be motivating and interesting for students, at least in theory (e.g., using interactive technology, active student participation in learning, content that students from various contexts can identify with). Representation is enabled by the use of materials that students with particular sensory and perceptual disabilities can access (e.g., multiple formats: pdf, audio, braille). Action and expression are encouraged when students have various options for demonstrating and sharing their knowledge (e.g., oral presentation, portfolio, written exam, video clip; (CAST, 2015, Meyer et al., 2014). Thus, inclusive teaching practices attempt to eliminate barriers to inclusion through a variety of instructional methods and materials, flexible assessments, and technologies that accommodate individual needs (Gawronski et al., 2016). They are designed to facilitate the integration of diverse types of learners (e.g., SWD, first generation college students, students coming from other culture or native language than their peers). In addition, they can reduce requests for specific accommodations in the classroom (Lombardi et al., 2011). Hence, inclusive teaching environments lessen the need for individual accommodations and promote full inclusion of populations of SWD.

### **Prevalence of Inclusive Teaching Practices**

It is difficult to determine the prevalence of inclusive teaching practices in high school and college due to the variability of practices measured across studies, and the scarcity of quantitative studies in this area (Rao et al., 2014; Seok et al., 2018; Schreffler et al., 2019). However, recent studies surrounding the development and validation of the Inclusive Teaching Strategies Inventory (ITSI) have taken the first steps toward this objective (Lombardi et al., 2011; Lombardi & Murray, 2011). The ITSI was developed to examine teachers' and students' attitudes toward the tenets of UDL and their perceptions of the use of inclusive practices in postsecondary education (Gawronski et al., 2016; Lombardi et al., 2015; Lombardi et al., 2011). It measures six constructs: (a) Accommodations (e.g., SWD could use technology to enroll in the course; SWD have extended time for exams), (b) Accessible Course Materials (e.g., teachers provide online lecture notes, audio files), (c) Course Modifications (e.g., teachers reduce the reading load for students with or without disabilities), (d) Inclusive Lecture Strategies (e.g., teachers summarize key points throughout each class, repeat students' questions back to the class before answering), (e) Inclusive Classroom (e.g., teachers use interactive technology to facilitate class communication and participation, small groups, peer assisted learning, discussion boards), and (f) Inclusive Assessment (e.g., teachers allow students to express comprehension in multiple ways). By operationalizing the principles of UDL, the ITSI provides the first validated tool for describing inclusive teaching practices and for examining relationships between these practices and student adjustment and performance (Lombardi et al., 2015; Lombardi et al., 2011).

When the ITSI was administered to various faculty members at a university ( $N = 223$ ) and a community college ( $N = 179$ ) in the U.S., over 88% of respondents reported that they used Inclusive Lecture Strategies, between 56% and 64% used inclusive classroom, and between 46% and 85% used a variety of accessible course materials (Gawronski et al., 2016; Lombardi et al., 2011). Otherwise, they were more reluctant to use inclusive assessments: only 25% of university faculty reported using them, and 68% of college faculty admitted that they never used them (Gawronski et al., 2016; Lombardi et al., 2011). Of all the inclusive instructional practices, inclusive assessment practices were the least often implemented at university (Lombardi et al., 2015), and faculty attitudes toward them were mixed (Gawronski et al., 2016, Lombardi et al., 2011). Moreover, postsecondary faculty did not generally believe that course mod-

ifications were important, even though the strategic end goal was to meet the needs of SWD (Dallas & Sprong, 2015; Gawronski et al., 2016).

The ITSI has been adapted for students (ITSI-S) to assess their attitudes toward inclusive teaching practices and their perceptions of faculty implementation of these practices at college (Gawronski et al., 2016). In line with their faculty, students generally had positive attitudes toward the practices, but noted that they were rarely implemented in class: 83% felt that it was important to have accessible course materials, but only 42% reported that this need was met. Similarly, 66% of students believed that inclusive assessment was important, but only 23% reported that it was actually provided (Gawronski et al., 2016). Moreover, students generally had more positive attitudes toward course modifications to meet students' needs compared to faculty, at 86% versus 43%, respectively (Gawronski et al., 2016).

Therefore, both students and faculty perceptions of inclusive teaching practices indicate a low integration of these in college teaching settings, as measured with ITSI(-S). Few SWD were also included in the previous studies (with only 13% of SWD in Gawronski et al., 2016), which prevents comparing perceptions of inclusive teaching practices between students with and without disabilities. Furthermore, no study has compared these perceptions between high school and college, to our best knowledge. To fill these gaps, the present study examines the perceived use of inclusive teaching practices from the perspectives of thousands of Quebec students who participated in a longitudinal panel study (from Fall 2019 to Spring 2020) on the high school–college transition, and who completed the ITSI-S at two time points. The novel aspects of this study include a comparison between the perceptions of students with and without disabilities plus a consideration of their class experiences in high school and their first year of college.

### **Inclusive Teaching Practices and Student Adjustment and Academic Performance**

Inclusive teaching practices are promoted because they are believed to have positive effects on students' outcomes, and notably SWD. According to the recent literature review from Cumming and Rose (2021), multiple studies reported that the use of inclusive teaching practices in postsecondary settings yields high levels of satisfaction and a sense of added value for both students with and without disabilities. Multiple studies also indicated that the use of inclusive teaching practices enhances student engagement and participation, thanks to an increased recognition of their diverse needs (Cumming & Rose, 2021; Seok

et al., 2018). Interestingly, some studies also reported that the use of inclusive teaching practices reduces students' stress related to their course workload (Cumming & Rose, 2021). This latter outcome raises the question of whether students' adjustment from high school to college could be facilitated by inclusive teaching practices, with adjustment being defined as the student capacity to deal efficiently with the multiple requests of the environment, which addresses emotional, social and academic spheres as well as bonding with the institution (Baker & Siryk, 1984).

However, with regard to student performance, the effects of inclusive teaching practices are still unclear (Cumming & Rose, 2021; Murphy, 2021). In particular, no study has shown that such practices yield increased students' grades, although they seem to have positive effects on students' learning. For instance, Yuval et al. (2004) invited faculty to incorporate a series of inclusive practices into their courses (e.g., use of a course website, course notes provided in digital format, books and textbooks available in audio format, use of video, case studies, teamwork in class, exercises that relate to key facts, online tests and exams, and options for weighing of activities and exams for final grading). They then administered student questionnaires to assess the implementation of inclusive practices, students' academic self-efficacy, and students' affective states. Results indicated that students in classes that implemented more inclusive practices scored higher on concentration (in class and exams), memorization, understanding, and explaining concepts compared to students in classes with fewer inclusive practices (Yuval et al., 2004). However, implementation of inclusive practices did not lead to higher grades. Note that the validity and generalization of these findings are limited by the absence of a control group, pre-intervention assessment, and comparisons between students with and without disabilities. Another two-year longitudinal case study demonstrated the effects of integrating a variety of inclusive practices (e.g., group note-taking, podcast, posted Powerpoint slides, online forum and chat room, extra exam time, peer review evaluation) on indicators such as retention and completion rates for SWD taking university science courses, but with no effect on course grades (Moon et al., 2011). In two experimental studies with control groups, academic performance was compared between SWD and other high school students who received either business-as-usual instruction or UDL treatment in chemistry class to learn to calculate molar conversions. The UDL strategy comprised an inclusive pedagogical repertoire, including problem-solving demonstrations via video clips, a problem-solving workbook,

practice problems with answer keys, teacher's course notes, and a durable problem-solving strategy sheet that consolidated key information (King-Sears et al., 2015, King-Sears & Johnson, 2020). A research team member delivered the UDL treatment for the first two days of the course with the regular teacher as co-teacher. The results of these studies show significantly higher performance for SWD who received UDL compared to business-as-usual instruction. At the same time, other students performed lower in the UDL condition (King-Sears et al., 2015; King-Sears & Johnson, 2020). However, the exposure to inclusive teaching practices was rather short (only two classes), precluding broader conclusions about the influence of UDL on the entire course.

### The Present Study

Considering the small number of studies that have addressed inclusive teaching practices in relation to UDL and the lack of quantitative studies that have examined the effectiveness of these practices for students, and particularly SWD, the present study had three objectives: (1) describe inclusive teaching practices as perceived by Quebec students according to teaching level (high school and college) and student's disability status; (2) determine relationships between the practices, adjustment to college, and student performance; and (3) explore the moderating effect of disability status (with or without disability) and disability type (ADHD, mental health disorder, or learning disorder) on the relationships between inclusive teaching practices and adjustment and academic performance in college.

## Methods

### Participants and Procedure

The participants in this study were enrolled in an ongoing longitudinal study launched in October 2019 called the ESH-Transition study (*Étudiants en Situation de Handicap pendant la Transition secondaire – collégiale/Students with Disability during the high school-college Transition*). The aim was to examine the effects of adapted services at college and teachers' inclusive practices on trajectories of adjustment and academic performance for SWD. The initial sample at Time 1 (T1) was composed of 1,826 students ( $M_{\text{age}} = 18.2$  years,  $SD = 3.8$ ; 78.6% girls) attending 10 colleges in the Province of Quebec, Canada. The colleges were located in three regions: 32.9% Montreal, 35.3% Quebec City, and 31.8% Central Que-

bec. The participants were taking various college programs (preuniversity: 57.0%, technical: 35.2%, Springboard<sup>1</sup>: 7.7%) and were either in their first term of college (93.7%) or in their first term at the current college (6.3% having attended another college earlier) in fall 2019. Participant-reported annual gross family income fell into the \$60,000–\$99,000 CAD category, and 16.3% of the students had received governmental financial assistance to attend college. Of the sample, 41.2% disclosed a disability at college entry, of which the most prevalent were: attention deficit disorder with or without hyperactivity (ADHD: 50%), mental health disorder (e.g., anxiety disorder, mood disorder: 48%), and language or learning disorder (e.g., dyslexia, dysphasia: 22%). In addition, 37% of these SWD presented comorbidity. All participants in the initial sample completed a battery of online questionnaires, including notably their assessments of the use of inclusive teaching practices in high school and their adjustment and academic performance after three months of college.

All these students were approached again at Time 2 (T2) in April 2020 when about one month of the first academic year remained before COVID-19 pandemic restrictions. Of the initial sample, 1,435 (78%) agreed to complete the second study phase. They responded to online questionnaires on their experiences of inclusive teaching practices since they began college as well as their adjustment and academic performance at college. We found no significant differences between students who withdrew from the study and those who participated at both measurement times in terms of the following variables: disability status, study region, study program, governmental financial assistance, family income category, and first-generation status, with  $X^2(1 - 4df)$  varying from 0.03 to 3.01,  $p > .05$ . The two groups also scored similarly on the inclusive teaching practice constructs at T1, with  $t(1754 - 1801)$  varying from 0.02 to 1.81,  $p > .05$ . However, proportionally more girls,  $X^2(1) = 29.36$ ,  $p < .001$ , and students with ADHD,  $X^2(1) = 4.99$ ,  $p < .03$ , withdrew from the study. Moreover, the students who withdrew presented more problems with academic adjustment,  $t(1819) = 6.38$ ,  $p < .001$ , and emotional adjustment,  $t(1809) = 3.41$ ,  $p < .001$ , at T1 compared to students who completed both phases, and they generally earned a lower GPA in high school,  $t(1774) = 7.03$ ,  $p < .001$ . The findings must be interpreted in light of the characteristics of the final sample.

1 Preuniversity programs are a prerequisite for students wishing to pursue university studies; technical programs offer more applied studies for students wishing to enter the job market directly (e.g., technicians); Springboard is a bridge program for students who are undecided about which college program they wish to attend or who do not meet the admission requirements.

## Measures

### *Sociodemographic factors*

A sociodemographic questionnaire administered at T1 established a portrait of the participants. The items addressed their study region, college program, age, gender, whether or not they received governmental financial assistance for college, parents' education and income, and students' high school GPA. Participants also indicated if they had been professionally diagnosed with a physical or psychological disorder and the nature of the diagnosis. Although this can appear as a medical-model version of disability, the reason is that students in Quebec (and Canada, generally) must present an official diagnosis from a health professional to access disability services (e.g., SWD accommodations).

### *Inclusive teaching practices*

Inclusive teaching practices were assessed at T1 and T2 using the ITSI-S (Gawronski et al., 2016; Lombardi et al., 2011), a 33-item questionnaire based on UD principles. As described in the introduction, it measures six constructs: Accommodations, Accessible Course Materials, Course Modifications, Inclusive Lecture Strategies, Inclusive Classroom, and Inclusive Assessment. Students rated each construct according to their perceptions of their teachers' attitudes and beliefs (e.g., "I believe it's important for my teacher to put his/her lecture notes online for all students") as well as their actions and behaviors (e.g., "My teacher puts his/her lecture notes online for all students"). In this study, only the second part of the assessment (actions and behaviors) is considered. In addition, we adjusted the response scale to measure whether each practice was generally implemented by all the teachers in a given year (1 = "None of my teachers uses this practice;" 2 = "Some of my teachers use this practice;" ...; 5 = "All my teachers use this practice"). At T1 (October 2019), participants referred to their experience during their final year of high school, and at T2 (April 2020) they referred to their first year of college. The Accommodations construct was not considered in the present study because it does not apply to students without disabilities. In addition, after translating the ITSI-S into French, we withdrew five of the original questionnaire items for having little correspondence to the situation in Quebec. The final version contains 20 items (see detailed items in French and English in the Appendix).

The questionnaire has been validated in many studies and presents excellent psychometric properties (see, Gawronski et al., 2016; Lombardi et al., 2015). In the present study, Cronbach's alpha for the subscales varied from .57 to .81 for high school and

from .63 to .79 for college. The weakest coefficient was obtained for a subscale containing only two items (Course Modifications). The average alpha score was .75 for high school and .73 for college. Correlations between the five subscales varied from .34 to .62 for high school and from .36 to .60 for college. These reliability indicators are well in line with those reported in the initial validation study (Gawronski et al., 2016).

### *Adjustment to college*

Adjustment to college was assessed at T1 and T2 using the French version of the Student Adaptation to College Questionnaire (SACQ-F; Larose et al., 1996). The SACQ-F contains 23 items that assess three constructs: academic adjustment (10 items, e.g., "I am satisfied with my academic performance in college,"  $\alpha = .80$  at T1 and  $.81$  at T2), social adjustment (6 items, e.g., "I am somewhat satisfied with my social life at college,"  $\alpha = .85$  at T1 and  $.86$  at T2), and personal and emotional adjustment (7 items, e.g., "I find it very hard to deal with the stress of college life," reverse coded,  $\alpha = .76$  at T1 and  $.77$  at T2). Responses were rated on a Likert scale from 1 (*Completely disagree*) to 5 (*Completely agree*). The validity and reliability of the SACQ-F has been well demonstrated (Larose et al., 1996). Because the preliminary analysis obtained roughly similar predictive profiles across the SACQ-F subscales, we decided to use the total score (mean score for the 3 constructs) as a predictive variable for adjustment. This score presents excellent internal consistency at both T1 ( $\alpha = .89$ ) and T2 ( $\alpha = .92$ ).

### *Academic performance*

Academic performance in the first college term (T1) was measured by the R score, which is the standard Quebec classification method for rating academic performance (BCI, 2020). The R score well represents students' ongoing performance, and it is used by all Quebec universities to select students for limited enrollment programs.

For T2, it was not possible to use the R score. The Quebec Government suspended the R score during the pandemic because of schools and classes closure at the end of the school year. It was replaced by an annual success rate based on the course attendance in fall 2019 and Winter 2020 and the estimated potential of failure in Winter 2020 at the time of the T2 questionnaires. It was calculated as follows: Number of courses taken minus (-) (number of courses dropped + number of courses they might fail) divided by ( $\div$ ) number of courses taken. This annual success rate was used as an indicator of success after one year in college. In addition, student-reported high school

GPA at T1 was used as a control variable in the predictive analysis.

### Analysis

With respect to the first objective, we present the descriptive data obtained from the ITSI-S according to teaching level (high school vs. college) and student's disability status (with or without disabilities). We ran a multivariate analysis followed by Anovas ( $F$  tests) with teaching level as the within factor and disability status as the between factor. For all performed tests, we computed partial  $\eta^2$  to represent the proportion of data variability that can be accounted to the corresponding effects and thus denote their practical importance (i.e., effect size). Partial  $\eta^2$  is considered as low size from 0.01, medium size from 0.06, and high size from 0.14 (Fritz et al., 2011). For the second objective, we examined the bivariate correlations between the variables and ran a hierarchical linear regression (for each dependent variable). We ran an initial series of regressions to determine predictive relationships between inclusive teaching practices in high school and adjustment and academic performance in the first college term while controlling for high school GPA. We ran a second series to predict adjustment and academic performance after one college year based on students' perceptions of inclusive practices in college. Here, we controlled for initial adjustment and academic performance in college and for inclusive practices in high school. To meet the third objective, we repeated the regression series with the inclusion of the moderating variable (i.e., disability status: with or without disability, disability type: ADHD, mental health disorder, or learning disorder) as a first step and the interaction terms between the moderating variable and each inclusive practice as a final step. These moderating effects were examined in separate regressions and were performed after centering all the variables.

## Results

### Description of Inclusive Teaching Practices

Table 1 presents the descriptive statistics for the students' perceptions of inclusive teaching practices by teaching level and students' disability status (with or without disability) (Objective 1). On a mean scale score from 1 ("None of my teachers uses this practice") to 5 ("All my teachers use this practice"), the majority of scores are closer to 1 than 5, indicating perceptions that a majority of teachers did not use inclusive practices. Course Modifications ( $M = 1.80$ ) and Inclusive Assessment ( $M = 2.24$ ) were the least widespread, whereas Inclusive Lecture Strategies ( $M$

$= 2.93$ ) and an Inclusive Classroom ( $M = 2.87$ ) were rated as the most broadly applied.

The multivariate results by teaching level (within factor) and disability status (between factor) indicate a significant multivariate effect for teaching level,  $F(5, 1075) = 139.80, p < .001$ , partial  $\eta^2 = .394$ , and a relatively weak but significant multivariate effect for disability status,  $F(5, 1075) = 2.36, p < .05$ , partial  $\eta^2 = .011$ . For teaching level, the univariate results indicate significant differences for four of the five inclusive practice subscales. Accessible Course Materials,  $F(1, 1079) = 274.37, p < .001$ , partial  $\eta^2 = .203$ , and Inclusive Lecture Strategies,  $F(1, 1079) = 40.17, p < .001$ , partial  $\eta^2 = .036$ , were perceived as more frequently used in college than in high school, whereas Course Modifications,  $F(1, 1079) = 6.71, p < .01$ , partial  $\eta^2 = .006$ , and an Inclusive Classroom,  $F(1, 1079) = 17.20, p < .000$ , partial  $\eta^2 = .016$ , were perceived as more widespread in high school than in college.

The results for disability status indicate that SWD perceived less inclusive practices than students without disabilities. More specifically, SWD gave lower scores than students without disabilities did for Accessible Course Materials,  $F(1, 1079) = 6.91, p < .009$ , partial  $\eta^2 = .006$ , Inclusive Lecture Strategies,  $F(1, 1079) = 4.01, p < .05$ , partial  $\eta^2 = .003$ , Inclusive Classroom,  $F(1, 1079) = 7.53, p < .006$ , partial  $\eta^2 = .007$ , and Inclusive Assessment,  $F(1, 1079) = 4.20, p < .05$ , partial  $\eta^2 = .003$ . Note that all these effect sizes are small, which means that although significant, the differences between perceptions of students with or without disabilities are low.

We conducted a deeper examination of the differences between SWD and students without disabilities in their perceptions of inclusive teaching practices while accounting for diagnosis type). The differences reported in the previous paragraph apply mainly for students who disclosed ADHD or a mental health disorder, with  $F$  values varying from 4.22 to 27.08,  $p < .01$ . Differences in perceived teaching practices between students with learning disorders and students without disabilities were not significant, with  $F$  values ranging from 0.01 to 1.81,  $p > .20$ . In other words, students with or without a learning disorder had similar perceptions of teachers' inclusive practices.

### Prediction of Adjustment and Academic Performance in the First College Term

Table 2 presents the correlations between the study variables, with some noteworthy results. First, the correlations between perceptions of inclusive teaching practices in high school and college are relatively weak (.13 – .34). This suggests that the stu-

**Table 1**

*Means and Standard Deviations for the 5 Teaching Inclusive Practices as a Function of Teaching Level and Disability Status*

	High School		College	
	SWD <i>M (SD)</i>	Others <i>M (SD)</i>	SWD <i>M (SD)</i>	Others <i>M (SD)</i>
Accessible course materials	2.14 (0.06)	2.35 (1.07)	2.87 (0.84)	2.90 (0.82)
Course modifications	1.84 (0.96)	1.85 (0.89)	1.76 (0.88)	1.76 (0.87)
Inclusive lecture strategies	2.78 (0.94)	2.89 (0.90)	3.00 (0.88)	3.05 (0.84)
Inclusive classroom	2.84 (0.90)	3.03 (0.88)	2.79 (0.76)	2.81 (0.75)
Inclusive assessment	2.17 (0.93)	2.34 (0.91)	2.23 (0.86)	2.22 (0.84)

*Note.* SWD = Students with Disabilities; *M* = Means; *SD* = Standard Deviation.

dents' assessments were fairly independent of their overall perceptions, and hence fairly representative of the teachers' actual practices. Second, the inter-level correlations among the inclusive practices vary from .34 to .62, indicating strong consistency as well as independence among the ITSI-S constructs. Third, several inclusive teaching practices are associated with adjustment and academic performance in college, although these associations are generally weak.

Table 3 summarizes the regression results for the prediction of adjustment to college and the *R* score in the first college term (T1) based on inclusive teaching practices in high school and controlling for high school GPA. Inclusive teaching practices in high school predict college adjustment in the first term above and beyond high school GPA,  $R^2 = 2.0\%$ ,  $F(5, 1653) = 5.90$ ,  $p < .001$ . Standardized beta scores indicate that three of the five practices make a significant contribution. Adjustment in the first college term is positively associated with high school teachers' use of an Inclusive Classroom ( $\beta = .09$ ,  $t = 2.29$ ,  $p < .05$ ) and Inclusive Assessment ( $\beta = .08$ ,  $t = 2.31$ ,  $p < .05$ ), but negatively with Course Modifications ( $\beta = -.08$ ,  $t = -2.67$ ,  $p < .05$ ). Inclusive practices in high school also predict the *R* score in the first college term when controlling for high school GPA,  $R^2 = 1.0\%$ ,  $F(5, 1264) = 3.71$ ,  $p < .002$ . The *R* score in the first college term is positively associated with high school use of an Inclusive Classroom ( $\beta = .08$ ,  $t = 2.32$ ,  $p < .05$ ) and Inclusive Lecture Strategies ( $\beta = .06$ ,  $t = 2.60$ ,  $p < .01$ ), but negatively with Course Modifications ( $\beta = -.05$ ,  $t = -2.12$ ,  $p < .05$ ).

### **Prediction of Adjustment and Academic Performance after One College Year**

Table 4 presents the regression results for the prediction of adjustment and academic performance after one year of college and the annual success rate based on inclusive teaching practices in college while controlling for adjustment at T1 and inclusive teaching practices in high school. Inclusive practices in college predict student adjustment after one college year (T2) above and beyond initial adjustment and inclusive practices in high school,  $R^2 = 1.0\%$ ,  $F(5, 1101) = 3.65$ ,  $p < .003$ . Standardized beta scores indicate that two of the five practices make a significant contribution. Adjustment after one college year is positively associated with Inclusive Lecture Strategies in college ( $\beta = .09$ ,  $t = 3.29$ ,  $p < .001$ ), but negatively with Accessible Course Materials ( $\beta = -.06$ ,  $t = -2.20$ ,  $p < .05$ ). Inclusive practices in college also predict the annual success rate after controlling for the *R* score in the first term and inclusive practices in high school,  $R^2 = 2.0\%$ ,  $F(5, 1045) = 6.08$ ,  $p < .001$ . The annual success rate is positively associated with an Inclusive Classroom ( $\beta = .10$ ,  $t = 2.58$ ,  $p < .01$ ) and Inclusive Lecture Strategies ( $\beta = .07$ ,  $t = 2.64$ ,  $p < .05$ ) in college.

### **Moderating Effect of Disability Status and Type**

To meet the third study objective, we ran a further series of regressions with the addition of disability status (with or without disability) and type (ADHD, mental health disorder, or learning disorder) as moderating variables. Given their empirical proximity, the variables were included separately. We examined

**Table 2**  
*Bivariate Correlations Among Inclusive Teaching Practices, Academic Adjustment, and Performance*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1- Accessible course materials – high school	-												
2- Course modifications - high school	0.36	-											
3- Inclusive lecture strategies - high school	0.35	0.39	-										
4- Inclusive classroom - high school	0.62	0.35	0.52	-									
5- Inclusive assessment - high school	0.46	0.45	0.46	0.62	-								
6- Accessible course materials - college	0.13	0.18	0.20	0.12	0.18	-							
7- Course modifications - college	0.07	0.24	0.13	0.05	0.19	0.48	-						
8- Inclusive lecture strategies - college	0.07	0.17	0.34	0.13	0.18	0.42	0.36	-					
9- Inclusive classroom - college	0.10	0.11	0.20	0.21	0.22	0.52	0.41	0.53	-				
10- Inclusive assessment - college	0.06	0.16	0.16	0.13	0.26	0.44	0.54	0.43	0.60	-			
11- Academic adjustment at T1	-0.01	-0.07	0.01	0.04	0.01	0.10	0.04	0.12	0.16	0.12	-		
12- Academic adjustment at T2	0.00	-0.07	0.01	0.07	0.00	0.07	0.06	0.10	0.16	0.12	0.53	-	
13- R score in Fall 2019	0.07	-0.12	-0.05	0.11	-0.03	-0.15	-0.16	-0.13	-0.12	-0.09	0.30	0.27	-
14- Annual success rate 2019-2020	0.02	-0.07	-0.02	0.07	-0.01	-0.02	-0.04	0.03	0.08	0.04	0.48	0.37	0.49

Note. Correlations >0.06 are significant at  $p < .05$ .

**Table 3**  
 Regression Results for the Prediction of Adjustment to College and the R Score in the First College Term (TI) Based on Inclusive Teaching Practices in High School and Controlling for High School GPA

	Step 1 $\beta$	<i>t</i>	Step 2 $\beta$	<i>t</i>	R <sup>2</sup>	<i>F</i>	$\Delta R^2$	<i>F</i> change
<i>Adjustment to college (TI)</i>								
1 High school GPA	0.13***	5.27	0.11***	4.53	0.02***	27.80 (1,1658)	0.02***	27.80 (1,1658)
2 Accessible course materials – high school			-0.02	-0.55	0.03***	9.62 (6,1653)	0.02***	5.90 (5,1653)
Course modifications – high school			-0.08**	-2.67				
Inclusive lecture strategies – high school			0.02	0.70				
Inclusive classroom – high school			0.09*	2.29				
Inclusive assessment – high school			0.08*	2.31				
<i>R Score (TI)</i>								
1 High school GPA	0.69***	33.97	0.67***	32.22	0.48***	1154.24 (1,1269)	0.48***	1154.24 (1,1269)
2 Accessible course materials – high school			0.01	0.35	0.48***	197.52 (6,1264)	0.01***	3.71 (5,1264)
Course modifications – high school			-0.05*	-2.12				
Inclusive lecture strategies – high school			0.06**	2.60				
Inclusive classroom – high school			0.07*	2.32				
Inclusive assessment – high school			-0.02	-0.59				

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 4**

*Regression Results for the Prediction of Adjustment and Academic Performance After One Year of College Based on Inclusive Teaching Practices in College and Controlling for Adjustment at T1, R Score in the First Term and Inclusive Teaching Practices in High School*

	Step 1 $\beta$	<i>t</i>	Step 2 $\beta$	<i>t</i>	R <sup>2</sup>	<i>F</i>	AR <sup>2</sup>	<i>F</i> change
<i>Adjustment to College (T2)</i>								
1 Adjustment at T1	0.71***	33.48	0.71***	32.72	0.51***	194.88 (6,1106)	0.51***	194.88 (6,1106)
Accessible course materials – high school	-0.01	-0.40	-0.01	-0.19				
Course modifications – high school	-0.03	-1.27	-0.03	-0.98				
Inclusive lecture strategies – high school	-0.01	-0.54	-0.04	-1.37				
Inclusive classroom – high school	0.06	1.82	0.06	1.69				
Inclusive assessment – high school	-0.03	-0.95	-0.02	-0.70				
2 Accessible course materials – college			-0.06*	-2.19	0.52***	109.23 (11,1101)		
Course modifications – college			-0.02	-0.69				
Inclusive lecture strategies – college			0.09***	3.28				
Inclusive classroom – college			0.03	0.88				
Inclusive assessment – college			-0.03	-1.16				
<i>Academic Performance (T2)</i>								
1 R score in the first college term (T1)	0.50***	18.25	0.52***	19.03	0.27***	63.50 (6,1050)	0.27***	63.50 (6,1050)
Accessible course materials – high school	-0.05	-1.45	-0.05	-1.40				
Course modifications – high school	-0.06	-1.76	-0.05	-1.58				
Inclusive lecture strategies – high school	0.03	0.76	-0.01	-0.20				
Inclusive classroom – high school	0.09*	2.07	0.07	1.76				
Inclusive assessment – high school	0.01	0.23	-0.01	-0.31				
2 Accessible course materials – college			0.03	0.81	0.29***	38.24 (11,1045)	0.02***	6.08 (5,1045)
Course modifications – college			-0.00	-0.07				
Inclusive lecture strategies – college			0.07	2.64				
Inclusive classroom – college			0.10**	2.58				
Inclusive assessment – college			0.00	0.05				

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

the interaction effects of disability status X inclusive practices and disability type X inclusive practices and found no moderating effect. In other words, the predictions of college adjustment and academic performance based on inclusive teaching practices are the same for students with and without disabilities.

## **Discussion**

The objectives of this study were to describe Quebec student perceptions of teachers' inclusive teaching practices in high school and college and to determine whether these practices are predictive for student adjustment and academic performance in college.

### **Description of teachers' inclusive practices**

Overall, the students felt that inclusive teaching practices (assessed using the ITSI-S) were seldom or only sometimes applied in both high school and college. The most often used practices were inclusive lecture strategies and an inclusive classroom, whereas course modifications and inclusive assessments were only rarely used. These results concur with the literature (Dallas & Sprong, 2015; Gawronski et al., 2016; Lombardi et al., 2011). They confirm that inclusive teaching still derives from individual teacher initiatives, and represents the exception rather than common practice (Fovet, 2021).

Comparing the two teaching levels, accessible course materials and inclusive lecture strategies were perceived as more widespread in college than in high school. The greater use of accessible course materials could be explained by the fact that college teachers are increasingly applying learning management systems to post course materials and students' grades. As for inclusive lecture strategies, they could be more prevalent in college because college teachers see their students less frequently than high school teachers do and would therefore tend to plan their class contents more carefully. More structured and well-presented classes would in turn facilitate the introduction of accessible course materials and inclusive lecture strategies. For instance, college teachers commonly use PowerPoint presentations that students can consult online beforehand. In contrast, high school teachers made greater use of inclusive classroom practices and course modifications compared to college teachers. This discrepancy could have something to do with North America's teacher training system: all high school teachers must earn a university degree in education, whereas college teachers typically have university training in their subject matter but little or no instruction in pedagogical methods (McGuire et al.,

2006). Hence, high school teachers would be better prepared to use diverse resources and activities, and therefore more liable to use an inclusive classroom. With respect to course modifications, college teachers are responsible for more courses and more students than high school teachers, which might discourage them from offering additional activities and assessments to meet individual needs. More generally, the limited use of course modifications in college could be due to the reluctance of college teachers to offer additional evaluations to some students only, because they feel it would be inequitable for other students. Note also that most postsecondary teachers have little knowledge or experience in teaching SWD (Gokool-Baurhoo & Asghar, 2019). Consequently, they could view course modifications as giving SWD an unfair advantage over students without disabilities. In contrast, in Quebec high schools, it is common practice to allow students to retake failed exams, including exams set by the Ministry of Education. The fact that this is normal practice in high school but not in college could explain why there are more course modifications in high school.

On another note, compared to students without disabilities, more students with ADHD or a mental health disorder perceived lesser use of inclusive teaching practices, with the exception of course modifications. This finding could be explained by the fact that this subgroup of SWD felt a greater need for inclusive practices, and consequently felt their absence more strongly than students without disabilities. On the other hand, there was practically no difference in this sense between students without disabilities and students with learning disabilities, who benefited from special accommodations in addition to the regular inclusive practices. Notably, they could use digital course notes, digital and audio textbooks, and in-class computers. This additional accessibility could have enhanced their perceptions of the use of inclusive practices in their courses. Meanwhile, students with ADHD or a mental health disorder would not necessarily receive these special accommodations. Moreover, given the retrospective nature of this study, it is possible that students with ADHD or a mental health disorder found it harder to recall the teaching practices in previous courses (Skodzick et al., 2017). In addition, they may have confused their perceptions of teaching practices in previous courses with those in current courses that fell short of their needs.

### **Prediction of Adjustment and Academic Performance in the First College Term**

The regression results showed that the use of an inclusive classroom, inclusive lecture strategies, and

inclusive assessments in high school positively predict adjustment and academic performance in the first college term. Inclusive classroom practices are used relatively frequently in high school and have been associated with positive learning outcomes (Katz, 2013; Rousseau et al., 2017). Our results reveal that the more that students perceived that high school teaching practices incorporated multiple means of representation and engagement, the better their adjustment and academic performance at college entry. In addition, inclusive assessment practices enable students to express their comprehension through diverse actions and means. In high school, this would act to support student autonomy through self-determined learning (Katz, 2013; Ryan & Deci, 2009), which would then positively impact academic adjustment in college. Furthermore, the use of inclusive lecture strategies in high school shows a positive effect on success rates in the first term of college. This finding suggests that when teachers present more open and accessible course structures that set forth clear objectives and key points, students can achieve more durable, long-term learning that prepares them for success in college. By applying these practices proactively in high school, teachers can foster autonomous learning within a structured course framework, which promotes student engagement (Jang et al., 2010). Students would then feel more competent and autonomous in learning and assessment situations, which would equip them to take ownership of their college studies and to seek the resources they need to thrive at a postsecondary level.

In contrast, the use of course modifications in high school appeared to have a negative effect on adjustment and academic performance in college. This finding could be explained by the fact that course modifications are used less often in college than in high school. Students who benefited from these accommodations in high school may find it harder to adjust to the reality of college, where they suddenly have to assume the same academic load and pass the same exams as everyone else. Course modifications might therefore be considered as useful for success in the short term, in high school. However, they come with lighter demands that do not nurture the development of effective strategies, particularly self-directed learning skills. In short, adaptations that are meant to ease task difficulty or improve poor grades through supplementary exams do not help students acquire the skills they need to adjust at college, as reflected in the academic performance results for the first college term.

### **Prediction of Adjustment and Academic Performance After One Year of College**

After one year of college, the use of inclusive lecture strategies by college teachers positively predicted students' adjustment to college and success rates. Essentially, these practices refer to the teacher's ability to structure information in order to foster learning. For example, objectives and key points are summarized throughout the class. This well-organized approach facilitates student adjustment and success. In addition, the use of inclusive classroom strategies by college teachers had a positive effect on students' success rates. These results are in line with Kumar and Wideman (2014), who demonstrated in an undergraduate course that multiple means of representation and engagement are beneficial for student learning. Our study details these results in a much larger and broader student sample where inclusive lecture and inclusive classroom strategies exert a positive effect on academic performance in college.

Surprisingly, the use of accessible course materials by college teachers appears to hinder adjustment to college. Although our study addressed practices used prior to the COVID-19 pandemic, it is worth noting that the second measurement time (with respect to college teaching practices) was in April 2020, which could have influenced the students' perceptions of this practice. Another potential influence on the results is the multiplicity of remote delivery platforms that were used, which could have confused some students. Because the teachers used a variety of platforms to transmit information and course materials (e.g., Omnivox, MIO, Moodle, Google Drive, One Drive, TEAMS), the students had to readjust for each course and in each term. Currently, college teachers tend not to consult or collaborate with each other, and combined with the tendency of some teachers to put a lot of course materials and notes online (e.g., research articles, website links, supplementary information), students may be overwhelmed with a profusion of information. Moreover, thanks to the abundance of platforms and the diversity of distribution methods that college teachers favor, students could perceive their workloads as heavier. A glut of ad hoc online delivery systems could impede student adjustment to college and academic performance, which underscores the importance for teachers to align their approaches, reduce the number of digital platforms, and prune the volume of online course materials.

Finally, neither student status (with or without disability) nor disability type appears to have had a moderating effect on the results, indicating that inclusive practices have the same effects on adjustment and academic performance for both SWD and

students without disabilities. These findings contradict those of King-Sears et al. (2015) and King-Sears and Johnson (2020), who found that students without disabilities performed lower than SWD in inclusive courses. However, their results were obtained in a highly contextualized setting: treatment and comparison groups taught for three or four classes in a chemistry course. In comparison, our study examined, in a very large and broad sample, students' perceptions of inclusive teaching practices across all their courses for an entire term. Our findings suggest that inclusive practices, and more particularly inclusive classroom activities and inclusive lecture strategies, have similar benefits for all students. These practices are therefore recommended for both high school and college teachers.

### **Conclusions and Future Research Avenues**

The aim of this repeated measures study was to describe inclusive teaching practices as perceived by high school and college students with and without disabilities, to determine relationships between these practices and adjustment and academic performance in college, and to explore the moderating effect of student status and disability type on these relationships. Students' perceptions were gathered in a vast longitudinal data collection from ten colleges in Quebec (Canada). Over 1,400 students, of whom approximately 40% disclosed a disability, participated at two measurement times for a broadly representative portrait. One notable finding was that inclusive teaching practices were seldom or only sometimes used in both high school and college. Yet according to our results, the use of these practices exerted a positive effect on students' adjustment and academic performance in college, particularly inclusive classroom and inclusive lecture strategies. These practices allowed students to better understand course structures, including key points and objectives, while supporting autonomous learning through multiple means of engagement and representation. However, it would be informative to delve deeper into the effectiveness of course modification practices in high school: our results suggest that they actually hinder the transition to college and lead to lower first-term college grades. High school teachers should be made aware of these implications, and further studies should be undertaken to better assess the effects of these practices. Finally, our results showed no differences between students with and without disabilities in terms of the effects of inclusive teaching practices in high school, suggesting that these practices are beneficial for all college students.

This study includes certain limitations. First, we gathered students' perceptions exclusively. Hence, there could be discrepancies between students' perceptions of the use of practices and the actual use of practices. Furthermore, students evaluated the use of inclusive practices across all their teachers for an academic year, which could have been a difficult task whenever the practices varied a lot from one teacher to another. The weak correlation between inclusive practices in high school and college points to differences in perceptions as well as practices. However, no objective observations of the practices were conducted. For instance, the fact that inclusive practices were applied does not necessarily mean that the students or teachers were aware that inclusion was the goal, nor that all the practices fit into a coherent, well-thought-out framework. Future studies could therefore investigate actual practices using classroom observations combined with interviews with high school and college teachers. Furthermore, the student assessments of practices were conducted a posteriori. Importantly, the questions pertaining to high school were posed in the first term of college, for a potential risk of memory gaps. In addition, although the second measurement time was during the first pandemic lockdown in Quebec, the questionnaire items overlooked this aspect. Yet, the students' perceptions of teaching practices before the pandemic could have colored their perceptions at the time of the second questionnaire, when emergency distance learning measures were in place. Hence, it would be useful to query the students again after the pandemic ends and college classrooms and labs return to normal. Such investigations would allow for the confirmation of the conclusions of this study and assessing the pandemic's effects on inclusive teaching practices, adjustment, and academic performance in college. Third, different measures were used for academic performance from the first to the second time point due to the unavailability of the students' R score (standardly used by all postsecondary institutions in Quebec) because of the pandemic. Although we used what we thought was the best representative of students' academic performance at the second time point during the pandemic, the corresponding results have to be interpreted with caution in light of this. The continuation of this longitudinal research project will allow for new measurements of students' academic performance at the next time points, and to provide additional evidence of its relationships with the use of inclusive teaching practices. Finally, we should keep in mind that the shared variation between inclusive teaching practices and adjustment and performance in high school and college were relatively low, suggesting more continuity

than discontinuity in student adjustment throughout the transition. In addition, this variation applied more for girls and low-risk populations as suggested by the attrition analyses. In other words, it is important for teachers to understand that the scope of their inclusive practices competes with that of other factors specific to the student characteristics and their developmental context.

With respect to the implications for practice, our results point to the need to train college teachers how to integrate inclusive practices into their courses. To date, these practices are barely present, and both high school and college teachers are largely uninformed of their impact. Greater use of these practices would not only facilitate the transition from high school to college, it would also foster success in college, in the first term and beyond. Moreover, inclusive practices appear to be beneficial for students with and without disabilities, underscoring the advantages of applying them in both high school and college. For disability service professionals, this study stresses the importance of building teachers' awareness about inclusive teaching as complementary practices to accommodations. Writing service plans and providing accommodations to specific students is the start, but with the increasing number of students with diverse needs comes a need to design or adapt courses in order to lessen the weight put on disability services. As specialists with SWD, disability service providers could partner with instructional designers to offer training or webinars about inclusive teaching, and what students with or without disabilities could gain from a wide use of such practices. For that, it is essential that both disability service providers and instructional designers are themselves aware of inclusive teaching practices and understand their benefits for answering the needs of diverse students.

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## Appendix

The 20-item scale administered in this study is presented below, both in French and in English.

**During the last academic year, how many of your teachers... (Au cours de la présente année scolaire, combien de tes enseignants...)**

### Accessible course materials

1. use a course website (e.g. Angel, Blackboard or faculty web page). / *utilisent un site web de cours.*
2. put lecture notes online for ALL students. / *mettent en ligne leurs notes de cours pour les étudiants.*
3. post electronic versions of course handouts. / *publient des versions électroniques des documents qu'ils utilisent pour leurs cours.*
4. allow students flexibility in submitting assignments electronically (e.g. mail attachment, digital drop box). / *donnent aux étudiants de la flexibilité quant à la façon de soumettre leurs travaux électroniques (p.ex.: pièce jointe au courriel, boîte de dépôt numérique).*

### Course modifications

5. reduce the course reading load for ANY student who expresses a need. / *réduisent la charge de lecture dans leurs cours pour les étudiants qui en expriment le besoin.*
6. allow ANY student to complete extra credit assignments. / *permettent aux étudiants de faire des évaluations supplémentaires.*

### Inclusive lecture strategies

7. repeat the question back to the class before answering when a question is asked during a class session. / *répètent la question d'un étudiant en classe avant d'y répondre.*
8. begin each class session with an outline/agenda of the topics that will be covered. / *commencent chaque cours par une présentation des sujets qui seront vus en classe.*
9. summarize key points throughout each class session. / *résument les points importants à chaque cours.*
10. connect key points with larger course objectives during class sessions. / *font le lien entre les points importants et les objectifs généraux du cours à chaque cours.*

### Inclusive classroom strategies

11. use technology so that my course material can be available in a variety of formats (e.g. podcast of lecture available for download, course readings available as mp3 files). / *utilisent des outils technologiques pour que le matériel du cours soit disponible en plusieurs formats (p.ex.: podcast du cours à télécharger, enregistrements du cours disponibles en fichiers mp3).*
12. use interactive technology to facilitate class communication and participation (e.g. Discussion Board). / *utilisent des technologies interactives pour faciliter la communication et la participation en classe (p.ex. Socrative, Kahoot, forum de discussion).*
13. present course information in multiple formats (e.g. lecture, text, graphics, audio, video, hands-on exercises). / *présentent le contenu de leurs cours de plusieurs façons (p.ex.: prestation orale, textes, graphiques, enregistrements audio, vidéos, exercices pratiques).*
14. create multiple opportunities for engagement. / *créent de nombreuses occasions de favoriser l'engagement de l'étudiant.*
15. use a variety of instructional formats in addition to lecture, such as small groups, peer assisted learning, and hands on activities. / *utilisent de nombreuses formules pédagogiques en plus des prestations orales, comme le travail en petit groupe, l'apprentissage par les pairs et les activités pratiques.*
16. supplement class sessions and reading assignments with visual aids (e.g. photographs, videos, diagrams, interactive simulations). / *complètent les séances de cours et les travaux de lecture avec des aides visuelles (p.ex.: photographies, vidéos, diagrammes, simulations interactives).*

**Inclusive assessment**

17. allow students to demonstrate the knowledge and skills in ways other than traditional tests and exams (e.g. written essays, portfolios, journals). / *permettent aux étudiants de démontrer ce qu'ils ont appris d'autres façons que par les tests et examens traditionnels (p.ex.: essais écrits, porte-folios, journaux).*
18. allow students to express comprehension in multiple ways. / *permettent aux étudiants d'exprimer ce qu'ils ont appris de multiples façons.*
19. are flexible with assignment deadlines in my course(s) for ANY student who expresses a need. / *sont flexibles à propos des dates de remise des travaux dans leurs cours pour les étudiants qui en expriment le besoin.*
20. allow flexible response options on exams (e.g., change from written to oral) for ANY student who expresses a need. / *permettent une flexibilité dans le mode de réponse aux examens (p.ex.: passer de la forme écrite à orale) pour les étudiants qui en expriment le besoin.*

# A Job Analysis of Accessibility Services Administrators in Higher Education

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## Abstract

The identification and understanding of essential roles and functions in a profession, through the application of job analysis methods, can serve as a guide to develop and hone professional competency. The last such analysis of accessibility services administrators in postsecondary education was published in 1997. A variety of changes in the field over the past 25 years warrant an updated examination of these duties. This study presents the results of a Delphi study conducted with 18 experts in postsecondary accessibility services. They were asked to review and rate the prior job duties as well as an array of duties reflected in the current professional literature. The study resulted in a set of accessibility administrator responsibilities that can be used to guide job activities and professional development going forward.

*Keywords: accessibility services, disability services, postsecondary education, job duties, essential roles and functions*

Calls for understanding the roles and functions (i.e., job duties) of personnel who work in the field of accessibility services for students with disabilities in higher education go back to the mid 1980s, after a period of rapid development of the field. In 1977, 32 professionals developed the Association on Handicapped Student Service Programs in Postsecondary Education (AHSSPPE; now known as the Association on Higher Education and Disability, or AHEAD; Bonney, 1983; Madaus, 1997). Membership increased to 600 professionals representing over 400 institutions by 1984 (Pierce, 1984). At this point, Blosser (1984) stated, “little, if any research has been conducted on the role and function, or the professional preparation needs of program staff” (p. 6). Two years later, Richard Harris, then the President of AHSSPPE, called for a better understanding of the professional training of individuals working with students with disabilities in higher education, and wrote, “AHSSPPE must exert great effort toward quality professional preparation” (p. 112).

To meet this call, Madaus (1997) conducted a job analysis of accessibility services administrators in the

United States and Canada. A sample of 567 service providers rated 54 items across 6 factors as important or moderately important in the administration of an accessibility services office. As noted by Madaus (1997), these items were shared with a 20 member Professional Standards Task Force convened by AHEAD, and then reviewed by the AHEAD Special Interest Group chairs and the AHEAD Board of Directors. As a result of these reviews, 51 items across 5 factors were accepted as the AHEAD Professional Standards (Madaus, 1997).

While the Council for the Advancement of Standards in Higher Education (CAS) has promulgated Standards for accessibility services, they were developed by professionals both within and outside the accessibility services profession. Since the Madaus (1997) examination, accessibility services job duties have not been systematically reviewed and updated solely by current practitioners. Both Blosser (1984) and Madaus (1997) called for periodic updating of our understanding of the roles and functions of service providers, and as Blosser noted, given “student

needs and other circumstances change” (p. 173). Certainly, a great deal has changed in the field since 1997, including ubiquitous technologies such as smartphones, smart watches, laptops and tablets that increasingly include embedded accessibility features (Walker et al., 2018); the passage of the Americans with Disabilities Amendments Act of 2008 (Keenan et al., 2019); the rapid growth of online and hybrid instruction (Kmetz et al., 2016); the promulgation of universal design in both the physical and instructional environment (Faggella-Luby et al., 2017); changes in the types of disabilities now present on college campuses, such as autism spectrum disorder, intellectual disability, and increasing numbers of students with psychological conditions; and changes in societal attitudes and beliefs about disability and social justice that impact how students access services and how these are delivered. Moreover, the number of professionals working in the field increased significantly. As previously noted, the 32 member AHSSPPE grew to over 600 members by 1984, and by 1995, AHEAD had over 2,000 members (Parkinson, 1997). Since this time, the AHEAD membership has doubled to over 4,000 members from all 50 states and 10 other countries (Scott, 2021). The time has come to again analyze the roles and functions of accessibility services personnel for the reasons articulated over three decades ago by Blosser and Harris, two of AHEAD’s founding professionals. Therefore, the current study investigated and identified the roles and functions considered most important for accessibility services practitioners in institutions of higher education.

### Methodology

The Delphi method was utilized in the present study to organize and build upon the collective wisdom of experts in postsecondary accessibility services. According to Scheele (1975, 2002), a panel consisting of scholars and those whom the research is about (i.e., accessibility services professionals) is best able to approximate the reality of the experience in question.

#### The Delphi Method

The Delphi method was developed in the early 1950s “to obtain the most reliable consensus of opinion of a group of experts...by a series of intensive questionnaires interspersed with controlled opinion feedback” (Dalkey & Helmer, 1962, p. 1). According to Dalkey (1969), the method consists of three features:

- (1) Anonymous response: Opinions of members of the group are obtained by formal questionnaire.
- (2) Iteration and controlled feedback: Interaction is affected by a systematic exercise conducted in several iterations, with carefully controlled feedback between rounds.
- (3) Statistical response: The group opinion is defined as an appropriate aggregate of individual opinions on the final round. (p. v)

The Delphi method has been used within higher education research to identify disability-related professional competencies (e.g., Lalor, Madaus, & Dukes, 2020), the essential tasks and functions of ADA coordinators (e.g., Friend, 2000) and disability-related program standards (e.g., Anderson, 1998; Shaw & Dukes, 2006). The Delphi method also allows for collection of both qualitative and quantitative data so that in addition to ratings of individual standards, wording of the standards can be refined across iterations.

#### Expert Panel

Selecting a panel of participants is an important consideration as it impacts the quality and validity of the Delphi outcomes (Day & Bobeva, 2005). According to Turoff (1975, 2002), there is no minimum number of experts needed for a Delphi study; however, Ludwig (1997) commented that “the majority of Delphi studies have used between 15 and 20 respondents” (p. 2). In order to identify experts, this study used a combination of (a) experience as an accessibility services professional, (b) leadership in delivering professional development, and (c) positions of leadership in postsecondary accessibility services. From this identified list of experts, the researchers narrowed the participants further by requiring that (1) accessibility services professionals hold a *primary* position as an administrator of an accessibility services office *and* a record of either relevant publications and/or an extensive record of providing professional development in the field and/or, (2) the expert is serving or has served in a formal leadership position within the postsecondary accessibility field (i.e., current or past President of AHEAD since 1996, Director of the National Center for College Students with Disabilities, current or past editor of the *Journal of Postsecondary Education and Disability*). A total of 18 participants representing these two, nonexclusive groups agreed to participate in the study.

#### Questionnaire Development

Online questionnaires were employed as study instruments and are described below (all questionnaires are available from the first author upon request).

### Review of the Literature

An extensive review of literature published since 1997 on accessibility services was reviewed by the research team and two special education doctoral students. A literature base consisting of all literature on higher education and disability published between 1955 and 2012 was reviewed. Additionally, publications spanning the years 2012 to 2019 were examined. Relevant publications, such as the AHEAD Program Standards and Performance Indicators (Shaw & Dukes, 2006), the Anderson study (1998) identifying essential services components for college students with learning disabilities, The CAS Standards in Higher Education (2013), and evaluation guidelines for accessibility services programs (Dukes, 2011), were particularly relevant during the item review and development process.

**Review of the 1997 AHEAD Professional Standards.** The original version of the AHEAD Professional Standards was reviewed by the five members of the research team. These items were examined for clarity of wording, representativeness of the field, and the extent to which the items reflected current language used within the field of postsecondary accessibility services (e.g., emotional support animals, interactive process, intersectional [in association with identity]). The five domains and the 51 corresponding items were revised, and additional job duties were included as a function of the previously described literature review resulting in five updated domains and 63 items (e.g., collaborates with diversity office to be inclusive of disability as an aspect of diversity, participates in campus-wide emergency planning). These became the Round 1 questionnaire.

**Round 1.** In Round 1, participants completed an electronic consent form, an eligibility screening confirming they each met eligibility requirements, a demographic questionnaire, and the accessibility services roles and functions questionnaire. Experts were asked to (a) rate each job duty statement based upon its importance regardless of financial, personnel, or budgetary constraints at an institutional level, using a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*); (b) note any proposed changes to the wording of an item; (c) propose any missing roles and/or essential functions important to accessibility services work in the domain area; and (d) provide feedback on the domain definition regarding its wording including how to reword the definition, if appropriate. Participants had three weeks to complete Round 1. Consensus was defined *a priori* as 66.6% of participant ratings of an item falling within two increments of the 5-point Likert scale (Anderson, 1998; Diamond et al., 2014). When consensus was achieved

on the rating of clarity or importance, the item was not included in subsequent questionnaires. Roles and functions that reached consensus with modal scores of 3 (*moderately important*) or lower were *not* included in the final set of job duties important to the work of accessibility services.

Comments were reviewed with domain names and descriptions revised based on panelist feedback. Individual roles and functions items were reviewed and subsequently collapsed or revised as necessary employing conventional content analysis (Hsieh & Shannon, 2005). Items were collapsed to eliminate redundancy and increase richness. Item revision increased clarity by eliminating acronyms and editing any grammatical and spelling errors. Domain definition, and domain item collapse and revision were completed by one researcher and reviewed by the four remaining researchers for accuracy. Additional changes were completed in response to feedback from the four researchers. These changes further improved grammar and redundancy in word usage within respective domain items.

**Rounds 2 and 3.** In Rounds 2 and 3, participants received (a) the revised questionnaire, (b) aggregate quantitative data (e.g., mean, mode, standard deviation, and a frequency table reflecting prior round ratings) from the previous round's participant responses, and (c) all qualitative comments from the previous round. In light of the aggregate quantitative data and qualitative remarks provided in the prior round, experts were asked to (a) rate each remaining job duty statement based upon its importance regardless of financial, personnel, or budgetary constraints at an institutional level, using a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*); (b) note any proposed changes to the wording of an item; (c) propose any missing roles and/or essential functions important to accessibility services work in the domain area; and (d) provide feedback on the domain definition regarding its wording including how to reword the definition, if appropriate. Again, participants had three weeks to complete Rounds 2 and 3 and procedures for data recording and analysis mirrored the Round 1 procedures.

Essential roles and functions that reached consensus in Rounds 2 and 3 were included with Round 1 duties that met consensus, and items that did not reach consensus after Round 3 were also noted. An *a priori* decision was made to terminate the study following three rounds due to feasibility concerns related to the likelihood of increased attrition (Schmidt, 1997).

## Results

### Expert Panel

All participants who agreed to participate in the study responded to the Round 1 questionnaire, 16 of the 18 expert panelists (88.9%) responded to the Round 2 questionnaire, and 15 of the 18 (83.3%) experts submitted data for all questionnaires. Table 1 presents the number of participants by round and expert group as well as demographic information.

### Results by Domain

The panelists reached consensus on essential roles and functions that clustered into five domains: Administration (25 items), Consultation and Collaboration (25 items), Institutional Awareness (10 items), Professional Development (13 items), and Student Development (10 items). The results for each domain are reviewed below.

#### Administration

Table 2 contains the 25 roles and functions related to administering services and programs to students with disabilities. Panelists rated “maintaining student records to ensure privacy” (e.g., documentation of disability) ( $M = 4.9$ ,  $SD = 0.32$ ); “providing guidance for the college/university on policies and their impact on disability services” ( $M = 4.9$ ,  $SD = 0.25$ ); “advocating with campus leadership for budgetary needs” ( $M = 4.8$ ,  $SD = 0.38$ ); “developing, administering, and managing program budgets” ( $M = 4.8$ ,  $SD = 0.38$ ); and “developing, publicizing, reviewing, and regularly revising all relevant program policies and procedures” (e.g., program mission, student eligibility for services, service delivery to students) ( $M = 4.8$ ,  $SD = 0.43$ ) as being important administrative duties of accessibility services. Items related to the Administration domain that did not reach consensus after three rounds of the Delphi include potential duties such as “coordinates individual mentoring to students relating to disability issues as needed” ( $M = 2.7$ ,  $SD = 0.87$ ) and “coordinates or provides academic advisement to students relating to disability issues” ( $M = 1.8$ ,  $SD = 0.40$ ).

#### Consultation and Collaboration

Table 3 reflects the 25 roles and functions related to working both in collaboration and consultation with campus or community personnel and agency stakeholders. Panelists rated “maintaining effective working relationships with campus legal counsel” ( $M = 4.7$ ,  $SD = 0.57$ ); “collaborating with other campus operations that work with students with disabilities”

(e.g., residential life, athletics, veterans services, registrar) ( $M = 4.6$ ,  $SD = 0.86$ ); “participating in campus-wide emergency planning” ( $M = 4.6$ ,  $SD = 0.78$ ); and “serving on campus administrative committees to foster consideration of the needs of students with disabilities” ( $M = 4.6$ ,  $SD = 0.70$ ) as being particularly important accessibility services responsibilities related to providing consultation and collaboration. Items related to the Consultation and Collaboration domain that did not reach consensus after three rounds of the Delphi include “collaborates in the provision of mentoring/advisement to enhance student development” (e.g., self-advocacy) ( $M = 2.9$ ,  $SD = 0.85$ ), “responds to requests for assistance or guidance from human resource departments making accommodations for student employees” ( $M = 3.6$ ,  $SD = 1.12$ ), “responds to requests for assistance or guidance from human resource departments making accommodations for non-student employees” ( $M = 3.1$ ,  $SD = 1.23$ ), and “responds to requests for assistance or guidance from departments making accommodations for employees” ( $M = 2.6$ ,  $SD = 1.45$ ).

#### Institutional Awareness

Table 4 includes the 10 roles and functions related to sharing information and expertise regarding disability with members of the campus community. Panelists believed it was important for accessibility services professionals to raise institutional awareness of disability-related matters via various methods of communication and representation. For example, panelists rated “serving on campus committees to develop institutional policies and procedures regarding students with disabilities” ( $M = 4.6$ ,  $SD = 0.79$ ) and “fostering the inclusion of disability in campus diversity initiatives” ( $M = 4.6$ ,  $SD = 0.62$ ) as being particularly important responsibilities of raising institutional awareness for accessibility services professionals. Interestingly, no items related to the Institutional Awareness domain failed to reach consensus and were considered nonessential.

#### Professional Development

Table 5 contains the 13 roles and functions regarding maintaining up-to-date professional knowledge and skills. Panelists believed it was important for accessibility services professionals to develop and maintain competencies necessary for offering quality services to individuals with disabilities. In particular, panelists rated “adhering to and applying a relevant code of ethics” ( $M = 4.8$ ,  $SD = 0.75$ ); “maintaining up-to-date knowledge of emerging issues in accessibility services” (e.g., technology, legal issues, documentation, service animals, emotional support animals)

**Table 1***Expert Panelist Demographics by Round of Data Collection*

Demographic	Round 1		Round 2		Round 3	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Expert group <sup>a</sup>						
Accessibility services professionals	13	72.2	11	68.8	10	66.7
Accessibility services leaders	14	77.8	12	75.0	12	80.0
Gender identity						
Man	4	22.2	4	25.0	4	26.7
Woman	14	77.8	12	75.0	11	73.3
Identify as a person with a disability						
No	13	72.2	13	81.3	12	80.0
Yes	4	22.2	3	18.8	3	20.0
Unsure	1	5.6	0	0.0	0	0.0
Race/ethnicity						
Black	2	11.1	1	6.3	1	6.7
White	16	88.9	15	93.8	14	93.3
Highest degree earned						
Bachelor's	0	0.0	0	0.0	0	0.0
Master's	12	66.7	10	62.5	9	60.0
Doctoral	5	27.8	5	31.3	5	33.3
Other	1	5.6	1	6.3	1	6.7
Nation employed						
Canada	1	5.6	1	6.3	1	6.7
United States	17	94.4	15	93.8	14	93.3
Institutional type						
Associate's college	3	16.7	2	12.5	1	6.7
Baccalaureate college	1	5.6	1	6.3	1	6.7
Master's college or university	2	11.1	2	12.5	2	13.3
Research or doctoral university	8	44.4	7	43.8	7	46.7
Other	4	22.2	4	25.0	4	26.7
Sector						
Private	3	16.7	3	18.8	3	20.0
Public	11	61.1	9	56.3	8	53.3
Other	4	22.2	4	25.0	4	26.7
Total participants	18		16		15	

*Note.* Additional answer choices were offered in most demographic areas (e.g., gender, race/ethnicity) but not selected by participants and thus not included in Table 1. <sup>a</sup> Percentages do not sum to 100% due to some participants meeting the criteria of expertise for both expert groups.

**Table 2**

*ADMINISTRATION: Responsibilities Related to Administering Services and Programs to Students with Disabilities*

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- Develops, publicizes, reviews, and regularly revises all relevant program policies and procedures (e.g., program mission, student eligibility for services, service delivery to students).
  - Identifies, establishes, and evaluates program goals at least annually.
  - Prepares and disseminates reports on program activities and services.
  - Maintains up-to-date staff job descriptions and performance expectations.
  - Develops, administers, and manages program budget.
  - Advocates with campus leadership for budgetary needs.
  - Develops, regularly reviews, and revises all program media (e.g., social media, website).
  - Responds to requests for interpretation of legal mandates on campus-specific issues related to students with disabilities.
  - Interprets court and government agency rulings and interpretations affecting services for students with disabilities.
  - Maintains student records to ensure privacy (e.g., documentation of disability).
  - Determines program eligibility for services based upon institutional expectation of documentation of a disability.
  - Responds to inquiries from prospective students and/or their families.
  - Processes disability related complaints/grievances from students in compliance with campus protocol.
  - Coordinates auxiliary aides for students (e.g., note takers, assistive technology).
  - Coordinates individualized accommodations for students (e.g., testing accommodations, housing accommodations, online course accommodations).
  - Adheres to a set of relevant office guidelines/standards.
  - Advocates with faculty on behalf of students regarding proper accommodation implementation.
  - Responds promptly to feedback about services from members of the campus or community.
  - Provides supervision for staff members.
  - Communicates program activities, services, and outcomes to institutional administrators.
  - Communicates the availability of disability-related services to students transitioning to the college or university (e.g., high school workshops, transition fairs) in collaboration with other campus departments.
  - Provides guidance for the college/university on policies and their impact on disability services.
  - Understands staffing strengths and needs.
  - Understands how to leverage existing staff as resources to complete needed office mission.
  - Addresses office staff professional development and training needs.
-

**Table 3***CONSULTATION AND COLLABORATION: Responsibilities Related to Working with Campus or Community Personnel and Agencies Regarding Disability Issues*

- 
- Facilitates the development and convening of an institutional disability advisory committee.
  - Serves on campus administrative committees to foster consideration of the needs of students with disabilities.
  - Consults with faculty or appropriate campus personnel to foster effective instructional and assessment techniques for students with disabilities.
  - Consults with state, provincial, or community resources (e.g., rehabilitation services, medical professionals, psychologists, social service organizations, secondary schools).
  - Collaborates with campus architects/campus facilities department to review or plan new construction and renovations.
  - Collaborates with facilities personnel regarding modifications to ensure campus accessibility.
  - Facilitates the communication of program-sponsored activities available to the campus community.
  - Communicates with campus Information Technology staff to support student success and legal compliance (e.g., web compliance, campus technology purchases, student distributed campus access).
  - Facilitates the communication of program activities to campus community (e.g., via campus news sources).
  - Maintains effective working relationships with campus legal counsel.
  - Fosters authentic inclusion of students with disabilities as representatives on relevant campus committees.
  - Participates in campus-wide emergency planning.
  - Collaborates with library personnel regarding accessibility of materials.
  - Collaborates with other campus operations that work with students with disabilities (e.g., residential life, athletics, veterans services, registrar).
  - Communicates information regarding accessibility services program activities and services to students.
  - Consults with faculty regarding the instructional needs of students with disabilities.
  - Consults with institutional administrators regarding the needs of students with disabilities (e.g., department directors, vice provost/president).
  - Consults with other campus departments regarding the needs of students (e.g., health services, residential life, admissions, counseling services).
  - Communicates information regarding program services to the campus community (e.g., websites, admissions brochure, student catalog).
  - Serves as an advocate for accessibility and inclusion of persons with disabilities with all campus personnel.
  - Collaborates with diversity office to be inclusive of disability as an aspect of diversity.
  - Prioritize collaborations and consultations that are likely to have positive effects on students, faculty, and staff with disabilities.
  - Contributes to the development of communication channels between institutional units specifically devoted to disability, health, and counseling.
  - Works to ensure American Sign Language users and Deaf culture is included on campus (e.g., supporting acceptance of American Sign Language to fulfill language requirements, providing opportunities for sign language users to gather and organize).
  - Respond to requests for assistance or guidance from departments making accommodations for graduate students.
-

**Table 4***INSTITUTIONAL AWARENESS: Responsibilities Related to Sharing Information and Expertise Regarding Disability Issues to Members of the Campus Community*

- 
- Fosters communication about disability relevant matters via all media for campus information sharing.
  - Serves on campus committees to develop institutional policies and procedures regarding students with disabilities.
  - Serves on campus committees addressing regulatory issues affecting students with disabilities.
  - Provides disability awareness programming for the campus community (e.g., accommodations, auxiliary aides, rights and responsibilities).
  - Supports training of faculty regarding serving students with disabilities (e.g., instructional techniques and supports).
  - Supports training for campus professionals to facilitate student integration in the campus community (e.g., residential life, registrar, library, institutional technology).
  - Collaborate to provide training for student leaders to increase awareness and accessibility of all programming activities.
  - Promote a positive disability narrative in support of a welcoming campus climate.
  - Foster the inclusion of disability in campus diversity initiatives.
  - Ensure that members of the campus community receive training about the diversity of people with disabilities and how different backgrounds, identities, ethnicities, and cultures intersect with disability.
- 

**Table 5***PROFESSIONAL DEVELOPMENT: Responsibilities Related to Maintaining Up-to-Date Professional Knowledge and Skills*

- 
- Attends conferences and professional development workshops.
  - Reads and applies professional literature related to higher education and students with disabilities.
  - Holds membership in professional organizations.
  - Facilitates staff participation in relevant orientation and professional development activities.
  - Maintains working knowledge of disability, disability types, diagnoses.
  - Facilitates staff, delineates and evaluates professional goals and expectations.
  - Adheres to and applies a relevant code of ethics.
  - Maintains up-to-date knowledge of emerging issues in accessibility services (e.g., technology, legal issues, documentation, service animals, emotional support animals).
  - Maintains a current knowledge of appropriate supports for specific populations of students with disabilities (e.g., students who are veterans; have mental health concerns; are autistic; are first-generation students; are student athletes; or who are attempting science, technology, engineering, or math majors/ courses).
  - Develops and applies cultural competence to work with individuals with disabilities.
  - Ensures that staff understand and abide by their professional code of ethics (e.g., accessibility services professionals, interpreters, etc.).
  - Ensures that information obtained from professional development is shared with other accessibility services staff.
  - Understand ableism and one's own power and privilege as it relates to individuals with varying abilities.
-

**Table 6***STUDENT DEVELOPMENT: Shared Responsibilities Related to Working Collaboratively with Students to Promote Their Development*

- 
- Consults with students regarding their needs including but not limited to academic and student affairs matters.
  - Utilizes an interactive process with students with disabilities regarding appropriate individualized accommodations based upon documentation.
  - Assists students with disabilities to monitor the effectiveness of accommodations.
  - Provides information to students with disabilities regarding their legal rights and responsibilities.
  - Encourages students to develop executive functioning skills, learning and study strategies, social skills, and self-determination/self-advocacy skills.
  - Refers students to community resources (e.g., vocational rehabilitation, social service agencies, etc.) as appropriate.
  - Shares information with students with disabilities about resources across campus and connects them as appropriate.
  - Supports community building among people with disabilities on campus (e.g., cultural centers, disability organizations, groups focused on disability and deaf culture, support groups, advocacy groups, social groups).
  - Supports students in understanding their disability through the interpretation of available documentation and the reason why any accommodations were granted.
  - Distributes program materials in paper and/or electronic formats to campus departments (e.g., health services, counseling services).
- 

( $M = 4.6$ ,  $SD = 0.69$ ); “facilitating staff participation in relevant orientation and professional development activities” ( $M = 4.6$ ,  $SD = 0.49$ ); and “ensuring that staff understand and abide by their professional code of ethics” (e.g., accessibility services professionals, interpreters, etc.) ( $M = 4.6$ ,  $SD = 0.81$ ) as being important to accessibility services duties related to promoting staff development of knowledge and skills. Once again, no items related to the Professional Development domain failed to reach consensus. All items associated with the Professional Development domain were deemed essential.

### Student Development

Table 6 reflects 10 roles and functions related to working collaboratively with students to promote their development. The student development domain was not part of the roles and functions originally identified by Madaus (1997). Panelists believed it was important for accessibility services professionals to be knowledgeable about and supportive of student development, which aligns with the sentiments of several authors of research examined as part of the literature review (e.g., Hadley, 2011; Higbee, 2004; Myers, 2008). Panelists rated “utilizing an interactive process with students with disabilities regarding appropriate individualized accommodations based upon

documentation” ( $M = 4.7$ ,  $SD = 0.75$ ) as being particularly important to accessibility services work. Items related to the Student Development domain that did not reach consensus after three rounds of the Delphi include “supports students in understanding their disability through the interpretation of available documentation and the reason why any accommodations were granted” ( $M = 3.2$ ,  $SD = 0.83$ ) and “provides or collaborates in creating programs that foster development and self-determination” ( $M = 2.8$ ,  $SD = 1.29$ ).

### Discussion

Shaw et al. (1997), stated, “It can be expected that changes in student needs, legislation, medicine, and technology will result in changing professional practice” (p. 26-27). The present study provides an overview of the current status of the responsibilities performed by accessibility service providers on college campuses and updates the work by Madaus (1997), which led to the AHEAD Professional Standards approved by the organization’s Board in 1997. The updated roles and functions have been identified as being essential regardless of type of institution (e.g., two/four-year, degree offered). This job analysis adds critically important data to the research literature by documenting the status of a field that is

responding to myriad legal, technological, and societal attitudinal changes over the past quarter century. Compared to the analysis of roles and functions conducted by Madaus (1997), this examination reveals the scope of work performed by accessibility service professionals has continued to expand as the number of essential duties has shifted from 51 in 1997 to 83 in the present study.

While direct service, a category of the AHEAD Professional Standards, remains a key aspect of the role of accessibility service providers, in the current study, it is no longer a distinct area and its content has been subsumed in multiple domains. For example, (a) the coordination of accommodations and auxiliary aides is delineated as an Administrative domain function, (b) the communication of information regarding program services to the campus community is a Consultation and Collaboration domain function, and (c) providing information to students with disabilities regarding their legal rights and responsibilities is now an element of the Student Development domain. In fact, the Student Development domain was not an outcome of the Madaus (1997) study, nor was it a component of the resultant AHEAD Professional Standards, thus in the current study it is an entirely new domain. The importance of fostering student development, both directly and indirectly, resulted in these functions becoming a unique domain in the present job analysis, ostensibly supplanting direct service as a domain. Indeed, there is a purposeful focus upon the promotion of students' taking on an active role in both advocating for and determining their academic strengths and needs based upon disability documentation and personal experience. For example, as part of the Student Development category, accessibility services staff: (a) Utilizes an *interactive* process with students with disabilities regarding appropriate individualized accommodations based upon documentation, (b) *assists* students with disabilities to monitor the effectiveness of accommodations, and (c) *supports* students in understanding their disability through the interpretation of available documentation and the reason why any accommodations were granted (emphasis added). The current focus is clearly upon an active role for the student, with one goal being the development and promotion of student self-determination during and after college completion. In fact, data have long suggested that promoting self-determination results in positive student outcomes (Field et al., 2003).

Further, the role of accessibility service professionals has grown increasingly collaborative with other campus programs and offices. The number of roles and functions in the Consultation and Collaboration domain has grown from 8 in 1997 to 25 for

the present study. Over time, there has been a greater emphasis on authentic inclusion of students with disabilities campus wide. For example, a role identified in the current study includes collaborating with the diversity office to be inclusive of disability as an aspect of diversity. Students, study participants believe, should utilize campus services and supports across the campus community in the same manner as any other individual. For example, a role of accessibility services is to consult with other campus departments regarding the needs of students. So, rather than a student with disability seeking out counseling from accessibility services, the student would instead seek out counseling support from the campus wellness center.

The number of Institutional Awareness roles and functions grew from 8 in 1997 to 10 in the present study. While the overall number has not increased substantially there are some important distinctions among the previous and current roles and functions. First, the 1997 Professional Standards noted accessibility services "*provides* training for faculty regarding awareness of disabilities" while the current synonymous item states, the office should "ensure that members of the campus community *receive* training about the diversity of people with disabilities ..." (emphasis added). Next, whereas the 1997 Standards use language such as "provides" and "responsible for", the current roles and functions in this domain instead utilize terms such as "foster" and "support", with the intent to communicate that campus awareness of disability is an institution-wide obligation.

One of the primary purposes of the AHEAD Professional Standards was for professional development. In fact, Madaus (1997) stated, "Identifying the current roles and functions of (accessibility services) leadership personnel would serve as a critical foundation in the delineation and development of professional training needs" (p. 10). Certainly, this need remains when one considers that the Professional Development area included 3 items in 1997 and has since grown to include 13. Given the evolving nature of the role of accessibility services on campus, the ongoing technological evolution, the shifts in legal expectations and the widening array of disabled students accessing college, it is to be expected that the importance of receiving and providing professional development has expanded. Training reflecting the current study results could be applied to both professional development for current practitioners as well as those completing accessibility services preparation programs (e.g., graduate or certificate programs).

While this study reveals changes in the field since 1997, it also demonstrates that many of the issues

facing the profession remain. Accessibility services personnel still bear the primary responsibility for advocating for the needs of students with disabilities, which is perhaps why the number of Consultation and Collaboration and Institutional Awareness roles and functions have expanded during this period. In the same vein, the results also reflect the incredible diversity of the ways these supports are provided on campuses. While many colleges/universities have robust programming and many professionals devoted to meeting the needs of these students, many other colleges and universities are serviced by part-time sole providers who only review documentation and provide accommodation letters (Scott, 2021).

### Limitations

The study results come with a few limitations that merit consideration. First, the Delphi technique study results are, in large part, dependent upon the utilization of an appropriate panel of expert participants (Anderson, 1998). The current study utilized a set of benchmarks previously used in similar studies to identify 18 experts in the field of higher education and disability as participants, with the majority of participants not identifying as disabled. These participants reflected a diverse array of colleges and universities across the United States and Canada. Panel member dropout during the three study rounds can also be considered a limitation. However, the current study had a response rate of more than 83% across all rounds of the process. Secondly, the Delphi process is, ostensibly, a method in which the terminology agreed upon is done by committee. As a result, some readers may find that the job analysis results have a diffusive tone. Personnel utilizing the study results when preparing job descriptions, for example, are encouraged to modify the tone of the roles and functions for operational applications. Lastly, a potential limitation is the possibility that the survey instrument did not fully reflect the entire universe of content; that is, it may not have included all roles and functions of an accessibility services office. In order to ameliorate this limitation, an extensive literature review was completed as part of the survey development process, and the previous AHEAD Program Standards were used as the baseline for survey development. Moreover, the study authors, who were responsible for the initial survey content, all have extensive experience in the field of higher education and disability. Lastly, as part of the Delphi protocol, panelists were able to make survey content recommendations if there were roles and functions they perceived as missing from the instrument.

### Conclusions

This study provides a current snapshot of the typical roles and functions of accessibility service offices. It indicates that accessibility services professionals provide a range of supports and services both directly and indirectly. The importance of collaboration and consultation has increased since the original AHEAD Professional Standards were developed (Madaus, 1997). The scope of services provided by accessibility services professionals continue to vary widely across campuses. Additionally, there may be duties not reflected in the results that professionals may need in their particular settings, and it is also possible some roles and functions identified in the current study may, in some settings, not be as important as others. Overall, the responsibilities of accessibility services personnel continue to evolve as indicated by the scope of roles and functions identified by the study participants. Moreover, it is recommended the examination of job duties be an ongoing activity that is subsequently reflected in the higher education and disability literature.

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# Engagement of Student Interns to Address Disability-Related Issues in Informal Learning Opportunities and Academic Courses (Practice Brief)

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## Abstract

The University of Washington's (UW) *Access to Informal STEM Learning (AccessISL)* project employs a student-centered approach and potentially transformative practices that embrace the social model of disability, social justice education, disability as a diversity issue, intersectionality, and universal design. A leadership team of interns—each member a UW student with a disability or a museology graduate student—along with project staff engage with the UW Museology program to identify and implement strategies for making ISL activities and courses more welcoming and accessible to individuals with disabilities. Initial outcomes of *AccessISL* intern engagement include specific changes within ISL programs, increased awareness and implementation of universal design principles in the Museology graduate program, and expanded skills about the accessible/universal design of informal learning within future professionals who served as interns in *AccessISL*.

*Keywords: informal learning, STEM, disabilities, universal design, accommodations, interns*

## Summary of Relevant Literature

To fill increasing numbers of positions in science, technology, engineering, and mathematics, the U.S. must draw from a talent pool that includes all demographic groups (American Association for the Advancement of Science [AAAS], 2001; Congressional Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development, 2000). Today, individuals with disabilities experience far less success in STEM (National Council on Disability and Social Security Administration, 2000; Office of Disability Employment Policy; 2001), and those who are also minorities, female, and/or veterans face multiple challenges (AAAS, 2001; Leake, et al., 2006). However, success stories in STEM fields demonstrate that opportunities exist for students with disabilities who can successfully overcome barriers imposed by inaccessible programs and technology, insufficient accommodations, low expectations, underdeveloped skills in self-advocacy, and reduced access to STEM role models with disabilities (Disabilities, Opportunities, Internetworking, and Technology [DO-IT], 1993-2022; Bellman & Burgstahler, 2016; Bellman et al., 2018; Stern & Woods, 2001).

Informal STEM learning refers to learning outside of the traditional classroom setting, such as learning at museums, science centers, public websites, and summer camps. Such learning can play an important role in increasing the interest and knowledge (Bell, et al., 2009; Fenichel & Schweingruber, 2010) of people with disabilities, but only if it is accessible to them. Since 1992, the DO-IT Center has worked to increase the STEM degree and career attainment of students with disabilities through a variety of projects, including national alliances called *AccessSTEM* and *AccessComputing*. Within these projects, students with disabilities at the University of Washington (UW) and partner institutions have engaged in peer and mentor support and career, self-determination, work-based learning, and leadership skill-building activities (Bellman, et al., 2014). The evidence base for DO-IT practices comes from literature reviews, student outcome data, and input from students with disabilities and practitioners (DO-IT, n.d.). Over the course of DO-IT projects, effective student interventions were organized into a model of inputs to promote movement through critical junctures (Burgstahler, 2006)—e.g., STEM degree completion—that have also been iden-

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tified as effective ways to bring students from other underrepresented groups into STEM fields (Allen, et al., 2006; Valentine, et al., 2009).

Funded by the National Science Foundation, the UW's *Access to Informal STEM Learning (AccessISL)* project builds on a previous pilot project to have students with disabilities conduct accessibility reviews of local ISL sites (DO-IT, 2013). In this effort, high school and college students with disabilities conducted accessibility reviews of ISL programs including the Seattle Aquarium, the Pacific Science Center, Museum of Flight, Burke Museum, and the Woodland Park Zoo (Burgstahler & Crawford, 2012). In these pilot activities, 46 students with disabilities from 13 high schools and 16 postsecondary institutions contributed a total of 79 accessibility reviews while developing a tool called the *Checklist for Making Informal Learning Accessible to Students with Disabilities* (AccessISL, 2021). Participants, whose disabilities included autism, blindness and low vision, deafness and hard of hearing, learning disabilities, mobility and health impairments, traumatic brain injuries, and mental health disabilities, increased their awareness of access issues, access solutions, and advocacy strategies.

*AccessISL* is a collaboration between the DO-IT Center and the UW Museology graduate program, which reflects the interdisciplinary nature of the museum field by purposefully sitting at the intersection of various disciplines on campus and by integrating evaluation and research related to multiple disciplines. *AccessISL* employs a student-centered approach that embraces the social model of disability, social justice education, disability as a diversity issue, intersectionality, and universal design. A leadership team of interns—each member a UW student with a disability or a museology graduate student—along with DO-IT and UW Museology staff and faculty work to identify and implement strategies for making ISL activities and courses more welcoming and accessible to individuals with disabilities.

*AccessISL* staff and faculty leaders engage in an online Community of Practice (CoP) that includes key stakeholder groups that impact efforts to make ISL environments accessible and usable by everyone. The project encourages all stakeholders promoting accessible ISL to adopt principles of universal design (UD). According to the Center for Universal Design, UD is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Connell, et al., 1997).

## Setting and Participant Demographics

*AccessISL* provides internship opportunities for postsecondary students to increase their knowledge and skills about the accessible/universal design of ISL, promote the inclusion of disability-related content within academic departments, and engage in activities to make ISL offerings more welcome and inclusive for everyone.

Fifteen UW students participated in *AccessISL* internship activities. Interns identified as having a variety of disabilities, including those related to learning, autism, attention, mobility, speech, blindness, mental health, and chronic fatigue. Three interns disclosed the existence of multiple disabilities. In the intern group, 2 identified as male and 13 as female. Students were recruited through the Museology Program, the Disability Resources for Students Office, the d/Disability Cultural Center, the Disability Studies Program, and the DO-IT Center. Interns received hourly compensation for participation in activities; Museology students received tuition reimbursement and academic credit. Intern participation was based on the academic quarter system at UW. Participation was flexible based on intern interest and availability. Eight interns participated in a 21-week internship from January 2020 to June 2020, four interns participated in a 21-week internship from January 2021 to June 2021, two interns participated in an 11-week internship from January 2021 to March 2021, and one intern participated in an 11-week internship from January 2021 to March 2021 and an 8-week internship during Summer 2021.

From January 6 to March 16, 2020, internship activities took place on-site at the UW campus, the Living Computer Museum, the Pacific Science Center, the Burke Museum of Natural History, and the Seattle Aquarium. Thereafter, nearly all activities took place online due to the COVID-19 pandemic.

## Depiction of the Problem

Informal STEM learning can play an important role in increasing the interest and knowledge of people with disabilities, but only if it is accessible to them (Bell, 2009; Fenichel & Schweingruber, 2010). In a 2012 issue of *Dimensions*, Christine Reich, vice president of exhibit development and conservation at the Museum of Science, Boston, stated "As institutions known for their interactive and self-directed activities, science museums already exhibit many of the principles of universal design for learning that foster equitable learning environments for all... Looking back, I see evidence that science museums have become more inclusive of people with disabilities over time. Looking ahead, however, I believe much more

work remains” (Reich, 2012) Examples of existing resources include accessibility resources through the American Alliance of Museums (2022); *Inclusion, Disabilities, and Informal Science Learning* from the Center for Advancement of Informal Science Education (CAISE) (Reich et al., 2010); and the recent book *The Art of Access: A Practical Guide for Museum Accessibility* (Pressman & Schulz, 2021).

### Description of the Practice

Through weekly modules, interns developed problem-solving, self-determination, and communication skills as they worked to enhance their learning about accessible ISL, promote the inclusion of disability-related topics within academic departments, and engage in activities to make ISL offerings more welcoming and inclusive. Several products and resources were created, co-developed, or enhanced by *AccessISL* interns. They included a video production; a publication called Equal Access: Universal Design of Informal STEM Learning (DO-IT, 2021); reports describing accessibility within museology courses; a presentation at the American Association of Museums Expo; content within the AccessISL Knowledge Base; and collaborations with ISL programs.

### Observed Outcomes

#### *Impacts on Informal STEM Learning Programs*

**Accessibility reviews at the Seattle Aquarium, the Pacific Science Center, the Burke Museum of Natural History, and the Living Computer Museum.** In small groups, *AccessISL* interns conducted on-site visits to four local ISL programs to conduct accessibility reviews in areas such as policies, facility and exhibit access, staff training, and information technology. Their reports were shared with each program along with suggestions for improving accessibility and suggestions for specific projects. All programs stated that the information was helpful for improving accessibility and that information would be utilized in program planning.

For example, the Seattle Aquarium shared that the site visit and follow-up correspondence from *AccessISL* interns “is really great and helpful and is producing to be a jumping off point for us to rebegin conversations around accessibility at the Aquarium and think about what type of standards we would like to have for guests in person and virtually. This letter has been shared with our Community Engagement and Inclusion Manager, the Diversity Equity and Inclusion Council, and our Director of Facilities and Operations. All have expressed gratitude for their recommendations, which are being reviewed to determine what actions can be taken. We are also con-

sidering how this is something we could incorporate into our 2022 institutional initiative surrounding a renewed focus on the guest experience.” Similarly, the Living Computer Museum shared, “We appreciate the information shared by the *AccessISL* interns. We’re already looking at ways to incorporate some of their ideas to further make our space accessible to everyone. We’re excited they were able to visit.”

**Website review with the Pacific Science Center.** An intern helped explore the Pacific Science Center website for accessibility as well as inclusive and welcoming language. This work supplemented a more in-depth report about web accessibility provided by AccessISL. The Pacific Science Center stated, “by summer of 2022, PacSci will have launched a new website with improved functionality and accessibility.”

**Minigrant with Riverside Art Museum (RAM).** One intern worked with RAM to support the development and piloting of a desert-themed RAM “KickstartART” Kit utilizing universal design to increase accessibility to STEAM lessons for children who are blind or low vision, neurodiverse, non-English speaking, or deaf/hard of hearing. The museum’s director of art education and community engagement stated, “This was an exciting time for the Riverside Art Museum to be able to work with (the intern) for the first time and work on universal design. She was able to set the framework that we can use when developing new projects as well as expanding access to existing museum projects.”

**Minigrant with Port Townsend Marine Science Center (PTMSC).** An intern worked with PTMSC to assist in the development of three sets of Salish Sea plankton models to improve tactile accessibility across all plankton programming and exhibits. The PTMSC program director stated that the *AccessISL* intern’s activities “made possible the 3D printing of several species of zooplankton and phytoplankton as greatly enlarged plastic models that can be handled and examined by students and visitors. These are remarkable teaching tools...Our education team can now create new opportunities for all students to explore life in the ocean through this unique tactile experience.” PTMSC staff appreciated working with the intern on captioning activities for their “Story of Hope” video, and are making efforts to ensure captioning continues on other museum video presentations.

#### *Impacts on the UW Museology Program*

Six interns provided analysis of four courses in the UW Museology program to identify strengths related to accessible offerings, as well as opportunities to further incorporate principles of UD. Courses included Introduction to Museology, Collaborative

Exhibits, Learning in Museums, and Careers and Social Capital.

In response to one intern's feedback for Learning in Museums, the instructor shared "This quarter when I taught the class, I made sure that each video that I showed had captions. I made sure that the PDF readings were converted into screen-reader friendly versions. Next year when I teach the class, I'll create a calendar specifically for students in the class and ask them to meet with me at some point during the first two weeks. Such a great idea!"

Two interns provided feedback for the Introduction to Museology course, arranged in the topical areas of accommodation disclosure, learning modalities, and accessibility of course materials. In response, the instructor of the course shared information about course redesign, which included faculty communication practices regarding accommodations, the utilization of a course assistant to help ensure access, physical access considerations, expanded learning modalities, enhanced guidance and advising for all students, live captioning for lectures, and books made available online to all students. The instructor shared, "Modeling these accommodations for the class reinforced a commitment to access for all."

One intern provided feedback for a course called Collaborative Exhibits, while another provided feedback for a course called Careers and Social Capital. The Museology program reported that the two classes are being redesigned and the feedback will be utilized to help inform the accessibility of the redesigned courses.

### ***Resource Development: Access to Informal STEM Learning Video***

Student interns created a video in collaboration with the UW's media development office, UWTV, called *Increasing Access to Informal STEM Learning* (Bellman et al., 2021). The video, submitted to the National Science Foundation's annual STEM for All Video Showcase (TERC, 2021), featured the interns talking about important facets of accessible informal STEM learning. The Showcase is designed for principal investigators of federally funded projects, practitioners, administrators, researchers, policymakers, industry, students, and the public at large. The AccessISL intern video has been viewed over 1,900 times and spawned 18 discussions.

### ***Resource Development: AccessISL Knowledge Base***

Interns contributed to the *AccessISL* Knowledge Base by creating articles, suggesting topics, and helping edit content. Examples of articles developed include the following.

1. Visitor Voices: Sharing perspectives of museum visitors with disabilities
2. Intrepid Museum: A promising practice in providing accessibility information
3. Where can I learn more about accessibility and UD of informal STEM learning programs?
4. ALT-text as Poetry: A promising practice in reimagining ALT text
5. How do I include deaf students in informal learning conversations?
6. Where can I find accessible downloadable museum exhibits?

### ***Changes in Intern Skills and Knowledge: Empowering Future Professionals***

*AccessISL* interns were asked to complete post-internship surveys so that the evaluation team could assess the impact the project had on them overall as well the extent to which learning outcomes were reached. When asked to describe how participation in the internship changed their knowledge or skills regarding accessible ISL, responses included the following:

- "Prior to this internship I was unfamiliar with the principles of universal design. Through readings and discussion boards, I had the opportunity to consider specific implementations of UD within museums and informal STEM learning organizations as well as the theoretical foundation for UD."
- "I think that I am better equipped to have discussions about creating accessible spaces and implementing better practices when creating and delivering these STEM programs."
- "Working within these real-world constraints gave me a deeper understanding of how museums and ISL organizations can implement UD in education within the capacity of the institution and how institutions can work to build out that capacity."
- "In this internship I was introduced to several institutions that are working to improve accessibility in their ISL programs. By considering how these organizations are doing the work, what is working, and what needs improvement, I identified promising practices as well as mistakes to avoid in application."
- "One of the most important takeaways that I've gained from this internship is that accessibility work cannot be done without a diversity of voices from community members living with disabilities. This is a practice I hope to take with me as I move through my career in museum leadership."

- “I plan to develop my thesis project with UD and accessibility at the forefront.”

### Implications and Transferability

Implementation of *AccessISL* activities will help bring about systemic changes in the practices of ISL programs that are engaged in project activities and by those who use the resources on the project website, including the *AccessISL* Knowledge Base and videos, thus continuing to impact practices after project funding has expired. Project leaders will continue to share project outcomes and lessons learned, and online resources through conferences, training, publications, and the project community of practice. A replication package regarding the utilization of interns is being developed for the *AccessISL* website for those who wish to learn more about conducting similar activities.

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# JPED Author Guidelines

## Purpose

The purpose of the *Journal of Postsecondary Education and Disability* (JPED) is to publish research and contemporary *best practices* related to disabled college students, college and university disability services offices, disability educators, and disability studies as a field within and lens for the study of higher education institutions. The sponsoring organization for the JPED is the Association on Higher Education and Disability (AHEAD, [www.ahead.org](http://www.ahead.org)), the primary source of disability related expertise on accessibility, legislation, rights, and any other disability-related information as it pertains to higher education. Consistent with the overall goals of AHEAD, each JPED article includes practical *implications for disability services educators* in colleges and universities.

## Review Process

The JPED is peer-reviewed and uses a masked-in-both-directions review process. Although our reviewers take care to provide developmental feedback, it is essential that prospective authors follow the guidance and formatting instructions in this document carefully. The editorial process is not typically able to address major issues of conceptualization or craft in a way that leads to eventual publication.

## Manuscript Topics and Types

Published manuscripts will advance JPED's purpose as detailed above (i.e., research, best practices, implications for disability services educators).

## Research Articles

Manuscripts demonstrate scholarly excellence using one of the types of articles described in the *Publication Manual of the American Psychological Association* (7th edition, American Psychological Association [APA], 2020) sections 1.1-1.8. These include quantitative, qualitative, mixed methods, replication, meta-analyses, literature review, theoretical, and methodological articles. ***Inclusive of all manuscript elements (including title page, references, tables, and appendices) research articles cannot exceed 35 pages and typically are between 25-30 pages.***

## Practice Briefs

Manuscripts describe innovative programs, services, or contemporary best practices that support disabled

college students or disability services, and are organized using the following first-heading levels (APA 2.27):

- **Summary of Relevant Literature:** provide a succinct summary of the most relevant and contemporary literature that provides context for what is already known about the practice/program.
- **Setting and/or Participants Demographics:** provide enough information about the implementation context for the practice described for the reader to make an informed assessment regarding similarity to their own practice environment--using a pseudonym or compositing as needed to provide anonymity for participants / institutions involved;
- **Depiction of the Problem:** provide a statement of the problem being addressed.
- **Description of Practice:** briefly describe the intended outcome for the innovative practice/program and how it has been implemented to date. Tables and figures may enhance specific details.
- **Evaluation of Observed Outcomes:** summarize formative and/or summative data used to evaluate the efficacy of your practice/program; support claims with evaluation data.
- **Implications and Transferability:** discuss what has been learned and how this practice/program could be enhanced. Be realistic about any challenges encountered and how others seeking to replicate the practice elsewhere might experience them. Offer suggestions about what could be done differently in the future to achieve better outcomes. Provide a clear description of how and why other disability service educators should consider adapting your practice/program.

***Inclusive of all manuscript elements (including title page, references, tables, and appendices) practice briefs cannot exceed 15 pages and typically are between 8-12 pages.***

## Book Reviews

Prior to preparing a book review, please contact the JPED's Managing Editor ([jped@ahead.org](mailto:jped@ahead.org)) to discuss the book you are considering reviewing. We typically have a queue of books for which we seek reviewers and also are typically awaiting reviews from several authors at a time. Doing so will increase the likelihood that we will be able to use the review you submit, which will follow the same submission process as other types, outlined below. Book

reviews provide:

- An overview of the book, identifying the book's stated purpose, the author's and his/her viewpoint, and a general summary of the content.
- An evaluation of the book's strengths, elaborating on the author's objectives and how well those objectives were achieved.
- Recommendations about the audiences that might find the book useful, why, and how you would suggest the book be used. Please be sure to address its potential contribution to the field. For any gaps in the book's content, rather than framing as weaknesses, consider offering suggestions about other works or perspectives that could be used in tandem with this book. In other words, of what conversations in our field could this book be an important part?

***Inclusive of the text of the review itself, book reviews should typically be between 750-1250 words. Book review submissions should also be accompanied by a complete citation for the book reviewed as well as references for any additional citations in the text of the review.***

### Manuscript Preparation

All manuscripts must be prepared according to the standards of the APA publication manual (7th edition). Authors submitting manuscripts to the JPED will be well-served to thoroughly understand Section 12 of the APA manual where the publication process is described as preparing for publication, understanding the editorial publication process, manuscript preparation, copyright and permission guidelines, and during and after publication.

When submitting a manuscript to the JPED, follow these specific guidelines:

- Submit *one* complete Word document (.doc or .docx) that contains all manuscript components (i.e., title page, abstract, body, references, tables/figures).
- Provide a separate cover letter (APA 12.11) asking that the manuscript be considered for publication and stating that it has not been published, or is not being reviewed for publication, elsewhere.
- Manuscripts should have one-inch margins in 12-point Times New Roman font. Double space the abstract, body, and references; single space the title page and tables/figures.
- The title (APA 2.4) should not exceed 12 words.
- Place the abstract (maximum 250 words, APA 2.9) on page two (following the title page). Include three to five keywords (APA 2.10) below the abstract (does not apply to book reviews).
- Use APA Section 1, Scholarly Writing and Publishing Principles, related to types of articles and papers; ethical, legal, and professional standards in publishing; ensuring the accuracy of scientific findings; protecting the rights and welfare of research participants and subjects; and protecting intellectual property rights.
- Use APA Section 2, Paper Elements and Format, to align paper elements, format, and organization. Indent paragraphs (APA 2.24), and adhere to heading levels (APA 2.27) to organize the manuscript.
- Content and method are important. Use APA Section 3, Journal Article Reporting Standards, related to overview of reporting standards; common reporting standards across research designs; and reporting standards for quantitative, qualitative, and mixed methods research. Please refer to Madaus et al. (2020) for research guidelines for higher education and disability where instructions are provided for describing samples and study locations, and appropriately selecting and describing the methodologies employed.
- Writing is important, carefully edit and proofread the manuscript.. Use APA Section 4, Writing Style and Grammar, related to continuity and flow, conciseness and clarity, verbs, pronouns, and sentence construction. Use APA Section 6, Mechanics of Style, related to punctuation, spelling, capitalization, italics, abbreviations, numbers, statistical and mathematical copy, presentation of equations, and lists. Refer to APA 6.32-6.39 to properly report numbers expressed as numerals or in words.
- APA Section 5, Bias-Free Language and Guidelines provides guidance for writing about people, identity, and other topics wherein bias in writing is common. Although generally useful, this section's discussion of disability is reductive. Authors should follow their best judgment in this regard. Additional guidance is provided below.
- Regarding language related to disability, authors must determine the type of wording that is best for their given study - typically person-first or identity-first language. (See the "AHEAD Statement on Language" for details about these options and for additional resources on the topic.) We encourage authors to be explicit about their choices in the manuscript, informing

readers about the rationale for their choice of language. When research or program participants are disabled and it is possible to determine their preferences, the preferred language of those individuals should be prioritized ahead of researcher or practitioner decisions. Additionally, aligned with the AHEAD statement in terms of outdated language use, we discourage “the use of outmoded euphemisms such as ‘special needs,’ ‘physically or mentally challenged,’ differently- or alternatively-abled, etc.” unless there is an explicit reason, such as referring to past practices or terminology to learn something valuable from it for current practice.

- Use APA Section 8, Works Credited in Text, related to general guidelines for citation, works requiring special approaches to citation, in-text citations, and paraphrases and quotations. All citations must be referenced, and all references must be cited; avoid undercitation and overcitation (APA 8.1). Double-space and block quotations of 40 words or more (APA 8.27).
- Provide a complete reference list (APA 2.12) rather than a bibliography following the manuscript. References should be formatted consistently, following APA examples in sections 9-11. Please be sure to carefully edit references as manuscripts will not be sent out for review until they conform to APA guidelines and references represent the most common challenge point for submitted manuscripts.
- Mask any information that could reasonably reveal the identity of the authors to the reviewers. For example, citations that would identify an author should be replaced with “citation omitted” and the corresponding reference removed from the reference list (APA 8.3). This does not mean that all author citations must be removed, only those that are likely to reveal an author identity by being self-referential. Those which are “in press” or “under review” should also be removed as they are typically from an author. Mask institutional identities in manuscripts if they are likely to reveal the institution of an author. Please do not use a title that can be searched in order to find a previous iteration of the work (e.g., a conference presentation, a dissertation). We will ask you to unmask these elements of your manuscript subsequent to acceptance. These examples are not exhaustive, but it is the author’s job to minimize any information that can reveal author identity.
- Tables and/or figures, following references, are in black and white only, and must conform to

APA standards in APA Section 7. Follow examples related to table lines. Align numbers in tables to the single digit or the decimal. If tables and/or figures are submitted in image format (JPEG, PDF, etc.), an editable format must also be submitted along with a text description of the information depicted in the table/figure. This will be provided as an alternate format in the electronic version of the JPED, making tables/figures accessible for screen readers.

- In submitted manuscripts, all tables and figures should be placed at the end of the manuscript with a corresponding indication in the text, “<Place Table/Figure X approximately here>”. During layout editing, tables and/or figures should will be embedded in the text either as noted in the manuscript or after its first mention in text (APA 7.6)
- Do not include footnotes, instead, incorporate footnote narratives into the manuscript.
- Because of the importance of articles including practical implications for disability services educators in colleges and universities, authors will be well-served to include in the discussion a multiple paragraph subsection where practical implications for disability services educators are discussed.
- Before submission, ensure that the manuscript is ready by using strategies, examples, and checklists provided by APA:
  - Sample papers (end of Section 2, pp. 50-67).
  - Strategies to improve your writing (APA 4.25-4.30).
  - Tables checklist (APA 7.20).
  - Figure checklist (APA 7.35).
  - In-text citation styles (Table 8.1).
  - Examples of direct quotations in the text (Table 8.2).
  - Reference examples (section 10 and 11).
  - Manuscript preparation (APA 12.9-12.13).

### Manuscript Submission

Before you decide to submit your manuscript, authors are encouraged to read past articles in the JPED (available at <https://www.ahead.org/professional-resources/publications/jped>) to better understand the types of submissions we print. **A manuscript must be submitted electronically as an attachment via email to [jped@ahead.org](mailto:jped@ahead.org), and must include the following:**

- Subject line: JPED manuscript submission.
- Include in the body of the email a statement

that you are submitting a manuscript for consideration for the JPED. Include the title of the manuscript and the full contact information for the corresponding author (APA 2.7).

- Attach to the email your complete manuscript, prepared as directed above, and a cover letter as outlined above.
- You will receive an email reply from Richard Allegra (Managing Editor of JPED) to confirm receipt of your submission within seven business days.
- Manuscript submissions by AHEAD members are especially welcome.

### Upon Acceptance for Publication

For manuscripts that are accepted for publication, we will request additional information at two separate intervals:

- First, corresponding authors will be asked to respond to copyediting suggestions shortly after acceptance. As part of this process, Cassie Sanchez (Copyeditor) will contact you with a proposed copyedited draft of your submitted manuscript and/or specific questions requiring your response.
- Second, once your manuscript has been assigned to a future issue, Valerie Spears (JPED Editorial Assistant) will contact the corresponding author to request: 1) a 40-50 word bibliographic description for each author; 2) and a signed copyright transfer form (Valerie will send templates for both); and 3) approval of galley proofs of the article ready for publication.

Although JPED reserves the right to edit all material for space and style, corresponding authors will be notified of changes.

### Special Issues

The JPED occasionally publishes special issues which feature a series of articles on a particular topic. The JPED welcomes ideas for special topic issues related to the field of postsecondary education and disability or disability studies. The issue can be formatted as a collection of articles related to a particular topic or as a central position paper followed by a series of commentaries (a modified point-counter point). If the issue has the potential to be valuable to the readership of the JPED, modification to the journal's content or format may be possible. Authors who wish to discuss a special issue should contact the editorial team at [jped@ahead.org](mailto:jped@ahead.org).

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The editorial team is composed of Ezekiel Kimball, Ryan Wells, Valerie Spears, Richard Allegra, and Cassie Sanchez. The review board is composed of more than 70 international disability scholars and disability services educators with expertise on disabled college students, disability services, disability studies, and research methodologies.

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