

# Journal of Postsecondary Education and Disability

Volume 32, Issue 2, Summer 2019

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JOURNAL OF POSTSECONDARY EDUCATION AND DISABILITY • VOLUME 32, ISSUE 2 • SUMMER 2019 • PAGES 103-211

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# Journal of Postsecondary Education and Disability

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ISSN 2379-7762 (Print) ISSN 2328-3343 (Online)

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## From the Editor

The lead article in this issue of the *Journal of Postsecondary Education and Disability* explores the awareness and responsiveness among academics of misophonia, a sound tolerance disorder that is characterized by an oversensitivity to certain sounds which can result in the distraction of the person that may limit one's ability to concentrate, think, and learn. **Connie Porcaro and Ali Danesh (Florida Atlantic University)**, **Emon Alavi (Georgetown University)**, and **Thomas Gollery (Southeastern University)** researched university instructors' knowledge of and experience with misophonia, including whether instructors would make classroom accommodations typically requested by students with misophonia. Among their findings were that only 18.4% of participants self-reported having knowledge of misophonia and only 2.3% reported that a student had requested course accommodations. The findings of this article indicate that dissemination of information on the topic of misophonia is critical, both for educators and for students. In the next article **Holly Hoffman and Cheryl Geisthardt (Central Michigan University)** and **Holly Sucharski (Vanderbilt University)** explored the college experiences of students and multiple sclerosis. With the number of children and adolescents diagnosed with multiple sclerosis on the rise, it is important to increase the understanding of how to support college students living with the disease.

The third article is an examination of college disability services for students with traumatic brain injuries (TBI). **Susan Davies, Michael Crenshaw, and Elana Bernstein (University of Dayton)** investigated disability services for college students with TBIs through interviews with directors of 18 college Offices of Disability Services, and reported specific information pertaining to services for students with TBI. In the next article **Claire DiYenno (Le Moyne College)**, **Thalia Mulvihill** and **Roger Wessel (Ball State University)**, and **Larry Markle (Eskenazi Health)** examined the experiences of students with physical disabilities in a summer internship program. Through hands-on-work experience and exposure to real-life work environments, students reported feeling more confident about their abilities to seek employment and to thrive in the positions once hired.

In the fifth article the postsecondary employment outcomes of young adults with autism are researched. **Holly Whittenburg (Virginia Commonwealth University)**, **Robert Cimera Kent State University)**, and **Colleen Thoma (Virginia Commonwealth University)** compared employment rates and outcomes

for young adults with Autism Spectrum Disorder who had received supported employment services. The study also analyzed the cost-effectiveness and cost-efficiency of vocational rehabilitation services provided to these youth. In the next article **Ryan Hudes (Seton Hall University)** and **Katherine Aquino (Manhattan College)** studied the extent of student-college matching for students enrolled in special education services. Among their findings was that students who enrolled in special education services in high school were undermatched to schools they had the potential of attending moreover, undermatching for this student group increased if students were Black, Hispanic, or of low socioeconomic status.

This issue concludes with two practice briefs; the first one is on an academic consultation model for college students with disabilities. **Amy Lynn Button, Jessica Iwachiw, and Jana Atlas (Alfred University)** explain the academic consultation services offered to students with disabilities at a small university. The consultants offered a variety of services, including organization/time management, note-taking/reading comprehension strategies, goal setting, self-advocacy, stress management, school work, and social skills. In the next practice brief **Carlyn Mueller and Cap Peck (University of Washington)** describe an online undergraduate course that explores ways to employ to help the arts can help students develop a clearer understanding of how perceptions about (dis)ability affect their lives and the lives of others.

The editorial team and review boards associated with the *Journal of Postsecondary Education and Disability* are pleased to provide the information in this issue for your continued learning.

Roger D. Wessel, Ph.D.  
Executive Editor



# Misophonia: Awareness and Responsiveness Among Academics

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## Abstract

The purpose of this study was to investigate university instructors' knowledge of and experience with misophonia, including whether instructors would make classroom accommodations typically requested by students with misophonia. Misophonia is a sound tolerance disorder, that is characterized by an oversensitivity to certain sounds which can result in the distraction of the person that may limit one's ability to concentrate, think, and learn. Qualitative data were collected using a survey sent by email to undergraduate instructors at six institutions in the state of Florida. A total of 686 participants completed the survey and were asked to define misophonia. Another set of ten questions was completed using a five-point Likert scale. Statistical analyses included inferential analysis of mean scores and principal components analysis. Only 18.4% of participants self-reported having knowledge of misophonia and only 2.3% reported that a student had requested accommodations in their course(s). Instructors who indicated knowledge of misophonia agreed that this is a condition to be taken seriously more often than those without knowledge of misophonia. Instructors who had experienced a student disclosure indicated that, with official accommodation, they would be willing to use proctored exams more often than those without experience of a student disclosure. The findings of this survey indicate that dissemination of information on the topic of misophonia is critical, both for educators and for students.

*Keywords:* classroom accommodations, sound-sensitivity disorder, misophonia

Misophonia, also known as selective sound sensitivity syndrome, was first described in 2001 by Jastreboff and Jastreboff as "abnormally strong reactions of the autonomic and limbic systems resulting from enhanced connections between the auditory and limbic systems" (para. 11). This sound tolerance disorder is characterized by strong emotional and behavioral reactions to certain sounds (triggers), as opposed to hyperacusis, which is a major sound tolerance disorder where individuals show negative emotional reaction to the loudness, not to the meaning or content of the sound (Baguley, 2003). Those with misophonia have strong negative reactions to the content of an acoustic trigger, such as chewing, but not the loudness. Currently, misophonia is not yet classified in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) (Schröder, Vulink, & Denys, 2013). Additionally, the condition is not included in the International Statistical Classification of Diseases and Related Health Problems, 11th revision. This lack of recognition, not only prevents clinicians from officially classifying the disorder but, in some

sense, de-legitimizes it, which also inhibits the individual from seeking help.

Recent investigations have helped to describe the signs and symptoms of this relatively unknown disorder. In a 2013 study, Schröder et al. noted a similar pattern of symptoms caused by triggers among 42 individuals experiencing symptoms of misophonia. In 81% of these individuals, eating-related sounds caused a misophonic reaction. Reactions included anger and fixation with specific sounds, causing the individual to avoid situations associated with trigger sounds. Other symptoms were triggered by loud breathing or nose sounds (64.3%) and keyboard or pen clicking (59.5%). The individuals in the study had initial contact with the misophonic stimuli, then experienced an aversive physical reaction. Individuals with misophonia experienced strong negative emotions (i.e., anger) in response to these triggers almost immediately (Kumar et al., 2017; Schröder et al., 2013). Additionally, 28.6% of individuals became verbally aggressive, and 16.7% directed physical aggression towards objects, demonstrating that

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individuals with misophonia feel a loss of self-control (Schröder et al., 2013). All participants reported avoiding situations where they anticipated these types of negative reactions to auditory stimuli. Since the stimuli that may cause someone to experience a misophonic reaction are usually produced by another human, the individual connects social contexts to the possibility of the stimuli being produced. Thus, they begin to actively anticipate these contexts to avoid the aversive reaction that was initially felt. This can limit the daily life of an individual with misophonia, and limited assistance has been provided due to the lack of misophonia awareness.

The prevalence and incidence of misophonia is currently unknown due to the lack of report measures. Currently, there are no statistics available regarding the number of individuals living with misophonia; however, associations between misophonia and more accepted sound disorders, such as tinnitus and hyperacusis, have been documented. Misophonia occurs in individuals who have normal hearing, but more commonly occurs in conjunction with tinnitus and hyperacusis (Jastreboff & Jastreboff, 2006). Misophonia was present in 60% of individuals with tinnitus who participated in Jastreboff and Jastreboff's 2006 study, as they both may be associated with hyperconnectivity between the auditory and limbic systems. This results in heightened reactions to their respective trigger sounds (Edelstein, Brang, Rouw, & Ramachandran, 2013; Jastreboff & Jastreboff, 2006).

Two studies have examined the prevalence of misophonia in an undergraduate student population. Wu, Lewin, Murphy, and Storch (2014) examined 483 University of South Florida undergraduate students with misophonia symptoms through self-reported measures. Of this sample, 23.4% indicated they are "sometimes" sensitive to each of the listed sound sensitivities. An additional 19.9% of participants self-reported clinically significant misophonia symptoms that were identified as causing interference in daily life. Findings from this study were replicated and extended in the work completed by Zhou, Wu, & Storch (2017) with 415 undergraduate students in China. Findings were similar to the previous study in that 27.6% of students in this study reported they are "sometimes" sensitive to sounds and 16.6% identified that misophonia symptoms caused significant interference with their daily lives. Additionally, when an impairment criterion was added, rates of misophonia symptoms associated with "moderate" levels of impairment decreased to 6% of the sample. These researchers suggested that while students may experience sound sensitivity, a smaller percentage actually experience associated impairment. These associated

impairments included anxiety and depression and would also be expected to negatively impact students at the university level. The findings of these studies from nonclinical university samples, indicate that misophonia may be somewhat prevalent in the general population. These studies highlight the impairment that can occur in educational settings in individuals with misophonia.

The Americans with Disabilities Act (ADA) of 1990 led to an increased recognition and validation of disabilities in students. According to the ADA, a person with a disability is someone with:

a physical or mental impairment that substantially limits one or more major life activities, including, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating and working. (p. 7)

Given the level of limitation reported by individuals with misophonia, it is likely that a student with misophonia may experience difficulties in a classroom environment. In the 2014 University of South Florida study, 22.8% reported often/always being sensitive to the sound of people eating and 22.8% were often/always sensitive to repetitive tapping (Wu et al., 2014). For students with reported misophonia symptoms, moderate/higher levels of function impairment were seen with 52.1% for school and work functioning, 22.9% for social functioning, and 18.8% for family and home functioning. The similar study for students in Chinese universities found that 16.6% reported sensitivity to sounds of eating and 16.9% reported sensitivity to tapping sounds (Zhou et al., 2017). Moderate/higher levels of functional impairment were self-reported in 25.7% for school and work functioning, 11% for social functioning, and 10.4% for family and home functioning. Insight from these studies indicates that university students may be impacted by triggers that exist in a typical classroom setting. An individual who experiences misophonia can possibly ask for accommodations, such as the cessation of students eating in class or the ability to wear earphones and listen to white noise or other soothing auditory stimuli. A student's success in the classroom may be dependent on the accommodations a professor is willing to provide.

The awareness of professors and their receptivity to provide classrooms accommodations can impact a student's education. A student's ability to divulge information about their condition and have their accommodations met are paramount in improving their



educational experience and emotional well-being. Preparing professors for inclusive classrooms means challenging their expectations, attitudes, beliefs, and acceptance of diverse students (Umesh, Forlin, Loreman, & Earle, 2006). This preparation can be beneficial for both the educator and the student. For students who have learning disabilities, studies have shown increasing a professor's contact and experience with special educational needs students combined with training and knowledge has led to more positive attitudes (Woodcock, 2013).

A 2006 study by Fields analyzed 36 general education teachers' perceptions regarding challenges given by a diverse student population with special needs. The teachers were enrolled in a university course in special education. Teachers were presented with 14 case descriptions of students with varying characteristics and special needs in the form of scenarios. Student descriptions included, but were not limited to, intellectual disability, specific learning disability, sensory impairment, gifted and talented, communication disorder, homeless, behavior disorder, cultural difference, and psychological disorder. Teachers rated the students in the scenarios on the level of difficulty they need to provide an inclusive education for them and chose which characteristics of the students would be the most challenging for them. The teachers identified students with a behavior disorder; cultural difference; psychological disorder; indigenous; and a sensory impairment as the most challenging when they are responsible for providing to their needs. On the contrary, the least challenging to the teachers were students with an intellectual disability; gifted and talented; or a communication disorder. Out of the five most challenging student characteristics, only one had a recognized disability (sensory impairment – hearing loss). A similar study by Soodak, Podell, and Lehman (1998) studied 188 general educators' responses to include students with disabilities in their classrooms. Teachers had more positive attitudes towards students with social and physical disabilities than academic or behavioral disabilities. It should be noted that there is overlap between misophonia and sensory processing disorder (SPD), specifically sensory over-responsivity (SOR) (Schröder et al., 2013). Given this potential correlation, it is likely that a student with misophonia would be a challenge for teachers who are responsible for the behavioral, learning, and social needs of students. Currently, there is no study that investigates professor's perception on misophonia. The purpose of this study was to survey faculty from six state universities in the state of Florida who instruct undergraduate courses concerning their awareness and willingness to provide accommodations to consider the needs of students dealing with the symptoms of misophonia.

## Methods

### Survey Development

There were two areas of focus for the faculty survey created, including knowledge of misophonia and willingness to provide accommodations to students reporting this condition. A draft was written using surveys created to address similar questions with different populations (Baker, Boland, & Nowik, 2012; Bourke, Strehorn, & Silver, 2002). Since misophonia is not yet a recognized disorder, some of the questions addressed accommodations in a general sense, meaning to alter behavior or policies in the classroom. These questions were included to determine if faculty members would consider altering classroom behavior or policies on a case-by-case basis. Other questions specifically noted that the university disability support office had specified accommodations for the student. Accommodation-based questions were included for situations that would likely transpire with a college student dealing with misophonia symptoms in the classroom. To ensure content validity, a review was conducted by a senior university research analyst who provided suggestions for improved format and content. This feedback was utilized to create the final survey which was connected to a hyperlink for presentation to participants through an email format. The final survey consisted of initial questions to indicate consent to participate and to determine that the individual had instructed at least one undergraduate course within the past two years. The survey was set up to take individuals who had not instructed an undergraduate course in the past two years to a survey exit without completing it. Further demographic questions included university affiliation and college of employment within the university. A yes/no response determined if participants knew the definition of misophonia; following that, a definition was provided regardless of how they answered to insure accurate understanding. The definition provided came from Edelstein et al. (2013) who defined misophonia as the following:

A chronic condition in which specific sounds provoke intense emotional experiences and autonomic arousal within an individual. Trigger stimuli include repetitive and social sounds typically produced by another individual, including chewing, pen clicking, tapping, and lip smacking. These experiences are not merely associative in nature, but drive the sufferer to avoid situations in which they may be produced, limiting one's ability to interact. (p. 1)

Another set of 10 questions was completed using a five-point Likert scale with choices given as strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, and strongly disagree. These questions were formulated to address provision of accommodation under various situations. Survey questions dealing with classroom adjustments or accommodations, along with relevant statistical data, can be found in Table 1.

### Participants

This project was approved by the university's Institutional Review Board for the protection of human subjects before the participants were contacted. Participants were recruited via email from a list of instructors provided by six state universities in Florida. An initial email was sent using Qualtrics' email distribution system to instructors explaining the purpose of the study and containing a link to the Qualtrics survey site. Strategies utilized to encourage participation included informing potential participants that completing the survey would take approximately ten minutes and two email reminders were sent one week and three weeks after the original email request.

## Results

### Demographics

Out of a total of 9,029 surveys that were emailed to instructors, 1,300 (14%) completed the first item which was to give consent to participate. The second item on the survey determined if participants met the criteria of teaching an undergraduate course in the past two years. Of the 1,300 who consented to participate, 788 (61%) answered "yes" to this item. Finally, of those 788 who both consented and met the undergraduate teaching criteria, 686 (87%) fully completed the survey. According to Mills and Gay (2016), in survey research when the total population size reaches or exceeds 5,000 individuals, a sample threshold of 400 may be adequate in representing that population. In the case of the current investigation, the participation of 686 individuals far exceeds that acceptable response rate.

### Survey Analyses

The data were converted into a SPSS data file for statistical analysis with IBM SPSS (24). Analysis was completed in order to determine the level of internal consistency of response (reliability) of participants' responses to the study's survey items. In determining the omnibus level of internal consistency of response to the study's survey items, a *Cronbach's alpha* of  $\alpha = .47$ ;  $p < .001$  was achieved. Although this level is

generally considered to be acceptable for exploratory research with a newly-created survey, re-coding of two specific survey items (1 and 3) yielded an overall alpha of .73 (Kline, 1999). Additionally, according to Tavakol and Dennick (2011), there is often an underlying assumption of "unidimensionality" regarding an alpha value. Further, in cases where an alpha value might fall below .60, Tavakol and Dennick recommend evaluation of specific dimensions of the survey. In order to evaluate specific dimensions which might be impacting the level of reliability, exploratory factor analysis was utilized to identify the underlying relationships between variables in this newly-developed survey. Specifically, Principal Components Analysis (PCA) determined that three distinct "factors" or "dimensions" were present in the study's data set that accounted for 60.4% of explained variance of survey item data. These included: (1) Making accommodations based upon student approval through university, (2) Attitudes toward misophonia, and (3) Behavior changes in light of a student with misophonia. Results from the PCA for this study are displayed in Table 2 which summarizes these individual breakdowns of the alpha levels. The assessment of the internal reliability of participant response using the three dimensions depicts a more appropriate level of internal reliability in line with Tavakol and Dennick.

### Findings

One primary purpose of this study was to determine if faculty members have knowledge of misophonia. Only 18.4% of participants responded "yes" to this question. The next survey question asked the person to define misophonia, if possible. A large majority responded with "not applicable" which was the requested answer if they did not know the definition. Most who did answer indicated they did not know, but guessed it had something to do with "sound," "hearing," or "voice." Most indicated that their answers were strictly guesses based on knowing parts of the word, including making a connection between "phonia" and hearing or speech sounds. Additionally, some of the participants indicated that they looked up the word "misophonia" before completing the survey after seeing it mentioned in the initial email. However, those with this response further explained that prior to that, they did not know the definition and indicated "no" to the question of whether they knew what misophonia was. When these instructors were asked if a student had disclosed having misophonia, only 2.3% of participants indicated "yes," with 97.7% indicating that no students had ever disclosed misophonia to them. The 2.3% or 17 participants who said yes were taken to a second question on that topic and asked how many stu-

dents had disclosed misophonia. Answers ranged from one to three students for this question.

Inferential analysis specifically involving the *Single Sample t-test* was used to compare the mean scores of each survey item against the survey's "null" or "neutral" value (3.0). Results indicated that each of the 10 survey items was responded to in a statistically significant manner. Table 1 contains a summary of the comparison using mean score, level of agreement, and single sample *t* value with a null of "3" for each survey item.

When comparing the mean scores on survey items of participants who were "knowledgeable" about misophonia to participants who were "not knowledgeable," the differences in responses to three of the survey items (#1, #2, & #3) were statistically significant favoring the "knowledgeable" group of study participants. This comparison is illustrated in Table 3.

Participant perceptions of misophonia were evaluated in regard to whether or not a student had disclosed having misophonia to the participant. When comparing the mean scores on the survey items of participants who experienced "student disclosure" about misophonia to participants who had not experienced "student disclosure," the differences in responses to three of the survey items were statistically significant in favor of the "student disclosure experience" group. Table 4 depicts the comparison between these items.

Regarding the impact of participant knowledge of misophonia, the dimension of "attitude towards misophonia" was most impacted by those who were knowledgeable compared to those who were not knowledgeable ( $t_{(684)} = 4.31; p < .001$ ). Moreover, concerning the impact of "student disclosure," the dimension of "attitude towards misophonia" was most impacted by those who had experienced a student disclosure as opposed to those who had not ( $t_{(684)} = 2.14; p < .05$ ).

### Predictive Effect of Survey Items

Two survey items were found to have exerted predictive effects on survey questions concerning willingness to accommodate students with misophonia. The first item is the belief that "misophonia is in one's head," which is survey item #3. This item exerted a robust statistically significant effect ( $p < .001$ ) on instructors' willingness to items five through 10 on the survey (see Table 1). The predictive effect is inverse, and simply put, as instructor perception of misophonia being in "one's head" increases, the tendency toward instructor willingness to accommodate and change personal behavior decreases. The second item with predictive effect was item #2 "misophonia should be taken seriously." This item exerted a robust direct predictive effect ( $p < .001$ ) on instructors'

willingness to the same survey items #5-#10 (see Table 1). This direct predictive effect illustrates that as instructor perception of misophonia being taken "seriously" increases, the tendency toward instructor willingness to accommodate and change personal behavior increases as well.

### Discussion

Recent research indicates that several of the most common sounds that may trigger symptoms of misophonia, including eating, breathing, keyboarding, and pen clicking occur often in university classroom settings (Schröder et al., 2013). It is likely that a classroom setting and other students may result in triggers in an individual with misophonia. The purpose of this study was to survey instructors of undergraduate college students regarding their knowledge of misophonia. Additionally, information was sought regarding specific situations where a student might request classroom accommodations for misophonia and whether the instructor would be willing to comply with these requests. Only 18.4% of the instructors surveyed reported that they knew the definition of misophonia. This leaves a very large number of instructors who do not have knowledge of this disorder or the issues students with misophonia may be facing in their classrooms. Only 2.3% of instructors surveyed indicated that students had disclosed having misophonia to them. While there is not currently a description of the prevalence of misophonia, it is likely based on this very small percentage that there are students dealing with this issue who are not discussing it with their instructors. Several recent studies have examined college students' attitudes and motivation regarding requesting accommodations in the classroom. Results indicated that students may hesitate to disclose disabilities or request accommodations because they do not want to be seen as asking for special treatment or to call attention to a disability that is not visible (Lyman et al., 2016; O'Shea & Meyer, 2016). Lyman et al. (2016) reported a theme among college students indicating that they did not know if they were disabled enough or if their particular disability qualified them for accommodations. Given the lack of general information about misophonia, it would not be surprising that students dealing with this issue would be unsure about their qualification for classroom accommodations which could result in the lack of accommodation requests. It is also critical to look further into the concepts of instructor knowledge and the classroom accommodations that might be requested by students with misophonia. Findings from the current study signified that respondents who



indicated knowledge of misophonia were more likely to provide classroom accommodations to students with misophonia than those who did not report such knowledge. Similarly, those who had previously experienced a student disclosure of misophonia and who, therefore, had knowledge were more likely to accommodate student requests than those who had not. Instructors who reported that they felt misophonia was a serious issue were more likely to accommodate requests and change personal behaviors. Taken together, findings from this study indicate that increased knowledge and communication between instructors and students would be beneficial. The findings further signify the value of educating faculty members about disabilities in general and particularly less prevalent disorders such as misophonia.

As with all survey research, the results of this study should be interpreted with some level of caution. Since this survey was sent to a large number of faculty who could self-select into participation, it is possible that the results are limited to those who showed at least a slight level of interest in the topic of misophonia and/or classroom accommodations. The survey was completed only by instructors of undergraduate course(s) in state-funded schools in Florida, therefore the results cannot be generalized to instructors in other locations or types of teaching environments. Future research aimed at a more wide-spread population of instructors could be useful, including those instructing graduate and undergraduate courses in both public and private institutions of higher education or those who teach in elementary, middle, and high schools as misophonia can be present as early as in the first decade of life. Examination of factors involved in face-to-face courses versus online courses may also be considered. This study was focused on hypothetical questions about what an instructor would do if presented with accommodation requests from students with misophonia. Future investigations could focus on what accommodations have been given by instructors in the past, although the low number of student disclosures indicates that there may be a low response rate to this type of survey. Furthermore, since there is a strong connection between instructor knowledge and perception that misophonia is to be taken seriously, additional research into instructor perception of university support for these accommodations could be useful. For example, are instructors presented with information on any of the disorders they are dealing with in the classroom and what more can be done to help them understand the needs of students at a university level?

The information contained in the disclosure for participation did present a general definition of misophonia as a “sound tolerance disorder.” As previous-

ly stated, this may have encouraged or discouraged participation based on interest of each respondent. In addition, it did provide general information that participants may have used when completing the question about whether or not they knew what misophonia was. The use of a consent form that does not define misophonia would be more useful in accurately accessing instructor’s knowledge level in future studies of this topic.

The survey utilized in this investigation was created for this study itself and was not previously examined for internal consistency of the survey items themselves. During analysis, question 1 (“misophonia makes no sense to me”) and question 3 (“misophonia is ‘in the head’ of the individual”) were recorded positively to be more uniform with the other eight questions. With this adjustment, the alpha level went from .47 to .70 indicating that making these modifications to future versions would improve the internal consistency of the survey questions utilized. Further, the questions utilized in this survey were closed-ended questions and the use of at least some open-ended questions may provide further insight into needs not yet recognized.

## Implications

Presently, misophonia has not yet been classified as a disorder, even though the description of this issue relates highly to several classified disorders (Schröder et al., 2013). Currently, misophonia has not been classified as a neurological, psychiatric, or auditory disorder. It is important to use a framework to consider the impact of disabilities on individuals’ daily lives regardless of which types of disorder misophonia is eventually determined to be. In order to understand the role of health conditions and disability, the World Health Organization (WHO) has generated a comprehensive framework based on a bio-psychosocial approach, namely the International Classification of Functioning, Disability and Health (ICF; World Health Organization, 2001). This framework has been used to a large degree to conceptualize the impact of various health conditions including hearing loss and other disabilities. In examining this framework, it is helpful to consider the WHO definitions and how persons with misophonia may be impacted in their daily lives.

The ICF model provides a definition for disability as an umbrella term for impairments, activity limitations, and participation restrictions, whereas an impairment is a problem in body function or structure. Misophonia itself can be viewed as a disability. Using the ICF model, misophonia can be considered as a bio-psychological impairment. This condition results in activity limitations (e.g., avoiding a classroom situation) and participation limitations (e.g., the individual

is not willing to go to restaurants because of their sensitivity to chewing sounds, hence causing withdrawal from social interactions). For an individual dealing with misophonia, participation in social, vocational, and/or educational opportunities may be diminished if the person either has an emotional reaction or must leave environments where trigger sounds are encountered. This person would be unlikely to perform at their highest capabilities in the classroom, which often requires the ability to focus in a classroom environment and interact with instructors or other students.

Results of the current investigation indicated that faculty who are more knowledgeable and who reported they feel that misophonia is a real issue are more likely to provide classroom accommodations for students. It appears that knowledge about misophonia was related to perceptions of empathy and understanding the importance of considering the needs of students with misophonia. Conversely, those who indicated a lack of understanding that misophonia is a real impairment were less likely to accommodate student requests. Responses to our survey also revealed that faculty indicated quite low levels of knowledge of misophonia, therefore, it is critical that faculty are presented with information regarding students who may struggle with this issue. Additionally, results indicated that having an experience where a student disclosed symptoms of misophonia was related to more likelihood of understanding and accommodating the needs of students with this issue.

Even though this survey was designed to inform us of instructors' knowledge and willingness to accommodate undergraduate students with misophonia, it is also important to note that consideration should be given to the individuals dealing with misophonia as well. Many individuals with misophonia report onset in childhood or early teenage years, so it is likely that this problem will be dealt with during the college years (Rouw & Erfanian, 2017). In the current investigation, nearly 98% of instructors indicated a student had never disclosed having misophonia to them, meaning that only 2.3% had experienced a student disclosure. While disclosure of misophonia and actually having signs and symptoms of misophonia are not one and the same, there is some level of relationship. The study by Wu and colleagues (2014) specifically surveyed university students and nearly 20% of those surveyed self-reported experiences associated with misophonia. It is likely that the actual prevalence may be somewhere between that self-report of 20% and the low student disclosure of 2.3% reported in the current study, but what we can take from what is currently known is that students with misophonia will be negatively impacted in university classrooms

without proper accommodations. This assumption is beginning to be reported by researchers in this area. It has been reported that individuals with misophonia could experience intense reactions or possibly even avoid situations where trigger sounds will be present (Schröder et al., 2013). In a large-scale study of over 300 individuals with misophonia by Rouw and Erfanian (2017), 87% of respondents indicated difficulty paying attention to movies or in a classroom due to misophonia.

There are specific challenges to providing assistance for college students with misophonia. The fact that misophonia is not currently labeled as a "disability" but it does impair students in the classroom leads to some confusion. We believe that taking a three-prong approach will aid in sorting out how to best assist these students. Further dissemination of information regarding misophonia should involve students, instructors, and disability support personnel. Students who experience challenges in the classroom due to sound tolerance disorders should be encouraged to communicate these issues both to instructors and to disability support personnel. Individuals dealing with misophonia will likely need to seek assistance from an audiologist to help determine how best to manage their impairment. Instructors who are aware of misophonia and open to allowing the student to alter normal expectations for classroom behavior will improve the situation for these students. In addition, as we learn more about misophonia, health care providers will determine more useful strategies for classroom success. Diagnosis of misophonia can be facilitated by an audiologist, using hearing evaluations and checklists. One aspect is to rule out hyperacusis, which is sensitivity to moderately loud and loud sounds that may not be perceived as too loud by others. The major difference between hyperacusis and misophonia is that individuals with hyperacusis are annoyed by the loudness of a stimulus; however those with misophonia are annoyed by the content of the stimulus and not necessarily by the loudness of it. Currently, very few studies demonstrating an evidence base for treatment of misophonia have been published. Edelstein and colleagues (2013) described case studies of individuals with misophonia and noted the use of coping strategies, including self-distraction, use of headphones or music, self-focus on one's own sounds, and positive internal dialogues. At first glance, the request to wear noise-cancelling headphones during a class or exam might not seem acceptable, but information provided by the student, his/her healthcare provider, and disability support personnel may facilitate better classroom performance. There is not one simple "fix" to manage all individuals with

misophonia. Since the use of different treatment and strategies is widely varied, it is important to realize that accommodations or classroom alterations will vary from person to person.

The findings from this study provide support for the fact that undergraduate college students with misophonia are likely facing disabling situations that may lead to academic underperformance or even failure. In addition, this study supported the concept that both instructors and students should be better educated on this topic. Research has shown that instructors dealing with accommodations for students with learning disabilities indicated that the student's attitude would influence whether or not accommodations would be provided (Nelson, Dodd, & Smith, 1990). More recently, Becker and Palladino (2016) examined faculty perspectives regarding teaching students with disabilities. Based on faculty responses, these authors concluded that high-quality professional development opportunities for faculty would be beneficial to the use of accommodations. In addition, they point out that faculty who have more experience with students with disabilities will be more willing to engage and properly meet needed accommodations for these students. An intersection between student and instructor understanding of misophonia is critical. Service disability providers can serve important roles in assisting students and working to expose faculty to the characteristics and challenges of this little-known disorder. Individuals working in this area should be equipped with knowledge about misophonia as it results in impairments at the level of body, person, and society to the individuals who struggle with this condition and, by definition, they should be considered as a person with a disability. It is also important for physicians and health care providers to provide documentation for this disability in order for university service disability providers to adequately advocate for students with misophonia. University administrators can work to coordinate efforts among agencies that support students with disabilities, the instructors, and the students dealing with misophonia.

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### Acknowledgments

Partial funding for this project was provided to Emon Alavi from the Florida Atlantic University Wave program, an undergraduate research and entrepreneurial competition. The authors are grateful for the support this program provided. Many thanks to John Cahill, Senior Research Analyst at Florida Atlantic University's Office for Institutional Effectiveness and Analysis, for his guidance on the survey development and use of Qualtrics. Additionally, the authors are grateful for the time and effort provided by those who completed the survey.

Table 1

*Mean Scores, Standard Deviations (t-values, and Effect Sizes for the 10 Survey Items)*

| Survey Item  | Mean Score | SD   | <i>t</i> | <i>d</i>          |
|--|------------|------|----------|-------------------|
| 1. Misophonia makes no sense to me.  | 2.21       | 1.06 | 19.41*** | 0.75 <sup>b</sup> |
| 2. Misophonia should be taken seriously.   | 4.04       | 0.91 | 30.01*** | 1.14 <sup>a</sup> |
| 3. Misophonia is “in the head” of the individual.  | 2.22       | 1.00 | 20.59*** | 0.78 <sup>b</sup> |
| 4. Students with Misophonia should go through the university for accommodations.                               | 4.32       | 0.99 | 34.84*** | 1.33 <sup>a</sup> |
| 5. I will make accommodations even if student has not gone through the university for approval.                | 2.75       | 1.35 | 4.80***  | 0.19              |
| 6. I will allow headphones to be used if student has formally gone through university for accommodations.      | 4.53       | 0.87 | 46.12*** | 1.76 <sup>a</sup> |
| 7. I will allow proctored exams if student has officially been authorized to receive accommodations.           | 4.79       | 0.64 | 73.45*** | 2.80 <sup>a</sup> |
| 8. I will allow note taker/tape recorders if student has officially been authorized to receive accommodations. | 4.67       | 0.78 | 56.24*** | 2.14 <sup>a</sup> |
| 9. Eating in class will not be allowed if chewing noises disrupt a student with Misophonia.                    | 3.34       | 1.32 | 6.82***  | 0.26              |
| 10. I will change my behavior if the behavior is unbearable for the student with Misophonia.                   | 3.58       | 1.12 | 13.56*** | 0.52              |

*Note.* \*\*\* $p < .001$     <sup>a</sup> Very Large Effect Size ( $d \geq 1.30$ )    <sup>b</sup> Approximate Large Effect Size ( $d = .80$ )

Table 2

*Exploratory Factor Analysis (EFA) Results*

| Factor/Dimension   | Questions Loading on Factor | Explained Variance | <i>a</i> |
|--|-----------------------------|--------------------|----------|
| Making accommodations based upon student approval through university | 4;6;7;8                     | 23.32%             | .71***   |
| Attitudes toward misophonia  | 1;2;3                       | 18.66%             | .61***   |
| Behavior changes in light of student misophonia                      | 5;9;10                      | 18.43%             | .65***   |

*Note.* \*\*\*All Domain Alpha levels reflect internal reliability values statistically significant at the .000 Level ( $p < .001$ ).

Table 3

*Comparisons of Survey Items 1-3 by “Knowledge Level” of Misophonia*

| Survey Item/Group   | <i>n</i> | Mean | <i>SD</i> | <i>t</i> | <i>g</i>          |
|---|----------|------|-----------|----------|-------------------|
| Misophonia makes no sense to me (Knowledgeable)                   | 127      | 1.82 | 1.10      | 4.70***  | 0.46 <sup>a</sup> |
| Misophonia makes no sense to me (Not Knowledgeable)               | 559      | 2.30 | 1.03      |          |                   |
| Misophonia should be taken seriously (Knowledgeable)              | 127      | 4.29 | 0.95      | 3.51***  | 0.34              |
| Misophonia should be taken seriously (Not Knowledgeable)          | 562      | 3.98 | 0.89      |          |                   |
| Misophonia is “in the head” of the individual (Knowledgeable)     | 127      | 1.86 | 0.89      | 4.88***  | 0.44 <sup>b</sup> |
| Misophonia is “in the head” of the individual (Not Knowledgeable) | 562      | 2.30 | 1.01      |          |                   |

*Note.* \*\*\* $p < .001$     <sup>a</sup>Approximate “Medium” Effect Size ( $g = .50$ )

Table 4

*Comparisons of Survey Items 1-3 by “Disclosure Experience” of Misophonia*

| Survey Item/Group   | n   | Mean | SD   | t       | g                 |
|---|-----|------|------|---------|-------------------|
| Misophonia makes no sense to me<br>(Disclosure Experience)                                  | 14  | 1.43 | 0.76 | 3.88*** | 0.76 <sup>a</sup> |
| Misophonia makes no sense to me<br>(No Disclosure Experience)                               | 672 | 2.23 | 1.06 |         |                   |
| Misophonia should be taken seriously<br>(Disclosure Experience)                             | 14  | 4.64 | 0.50 | 2.53**  | 0.68              |
| Misophonia should be taken seriously<br>(No Disclosure Experience)                          | 675 | 4.03 | 0.91 |         |                   |
| Misophonia is “in the head” of the individual<br>(No Disclosure Experience)                 | 14  | 1.57 | 1.02 | 2.44*   | 0.66              |
| Misophonia is “in the head” of the individual<br>(No Disclosure Experience)                 | 675 | 2.23 | 1.00 |         |                   |
| I will allow proctored exams if accommodations are authorized<br>(Disclosure Experience)    | 14  | 5.00 | 0.00 | 8.45*** | 0.33              |
| I will allow proctored exams if accommodations are authorized<br>(No Disclosure Experience) | 675 | 4.79 | 0.65 |         |                   |

Note. \* $p < .05$     \*\* $p = .01$     \*\*\* $p \leq .001$     <sup>a</sup> Approximate “Large” Effect Size ( $g = .80$ )

# College Students and Multiple Sclerosis: Navigating the College Experience

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## Abstract

The number of children and adolescents diagnosed with multiple sclerosis (MS) is on the rise, increasing the importance of understanding how to support college students living with the disease. Based on the results of two studies, this paper aims to identify challenges facing college students with MS, as well as possible resources and strategies for helping college students with MS have a successful college experience. The first study explored parents' concerns about their child managing college and MS. The second study examined perspectives of college students with MS on challenges, coping strategies, and supports while attending college and living with a chronic illness. Findings from both studies are used to make recommendations for assisting college students with MS as they strive to meet their educational goals.

*Keywords: multiple sclerosis, college students, college accommodations, student disability services*

College students today face a wide variety of challenges and opportunities as they navigate the college experience. Living with a chronic illness or disability can create additional challenges to reaching one's educational goals. Multiple sclerosis (MS) is an example of a chronic illness that may make college life more difficult. MS is the most common disease of the central nervous system in young adults (National Multiple Sclerosis Society [NMSS], 2015) and there are a growing number of adolescents being diagnosed with this disease (Thannhauser, 2014). As the number of young adults with MS increases, so does the need for understanding how to best support college students with MS.

MS was once believed to be a condition that primarily affected middle-aged females. However, increasing diagnosis of MS in children and adolescents led to the formation of the International Pediatric Multiple Sclerosis Study Group (IPMSSG) in 2002 (IPMSSG, 2018). In 2006, six pediatric MS centers of excellence were opened in the United States to address the growing population of children and adolescents with MS. Currently there are 13 pediatric centers of excellence throughout the U.S. (NMSS, 2015). Today, we know that MS has the potential to impact individuals primarily between 15 and 60 years of age, with one male being diagnosed per every two females (Mayo Clinic, 2017). Rates of MS diagnosis across all age groups are

on the rise due to increased access to magnetic resonance imaging (MRI), as well as better understanding of the disease (Benito-León, 2011).

According to the National Institutes of Health (2015), approximately 250,000 to 350,000 individuals in the United States are currently living with MS, with approximately 200 new cases diagnosed each week. Organizations such as the National Multiple Sclerosis Society (2015) report an increase in the number of individuals living with a diagnosis of MS have increased from 123,000 in 1980 to 400,000 in 2012. According to the Multiple Sclerosis International Federation (2016), approximately 2.3 million individuals were diagnosed with MS worldwide in 2013. This is an increase of 9.8% in comparison to the number of cases in 2008. Approximately 5% of those diagnosed internationally with MS are children, with estimates ranging from 8,000 to 10,000 children under 18 years old currently living with MS in the United States (NMSS, 2015). As with adult MS, rates of diagnosis of pediatric MS are increasing (Chitnis et al., 2011). While estimates of the number of college students with MS have not yet been reported, the increasing rates of pediatric and young adult diagnosis of MS suggest it is likely the number of college students with MS is on the rise as well. Therefore, it is becoming more important to understand the specific needs of college students with MS.

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Multiple sclerosis (MS) is an immune-mediated disease that causes an individual's immune system to attack his or her own central nervous system. Myelin, the protective coating that covers each nerve fiber, is gradually damaged, resulting in scar tissue. As the myelin is compromised, the nerve impulses that are attempting to travel from the brain, spinal cord, and optic nerves are derailed or lost, affecting individuals in a wide variety of ways (NMSS, 2015). Often referred to as a "snowflake" disorder, MS impacts each person differently, depending on the severity and location of lesions on their brain (Banwell et al., 2016). Estimated prevalence rates for common symptoms of MS include 75-81% of individuals experience fatigue (Braley & Chervin, 2010; Kister, 2013), 70% loss of balance/dizziness (Marrie, Cutter, & Tyry, 2012), 65% numbness (Ford et al., 2012), 50% depression (Siegert & Abernethy, 2005), 50% mobility issues (Goldenberg, 2012), 50% cognitive dysfunction (National Institute of Neurological Disorders and Stroke, 2018), and 45% vision problems (Nicolaie, van Houwelingen, & Putter, 2015).

An additional challenge of MS is the unpredictable nature of this disease. For most impacted by MS, problems may appear and disappear, as individuals experience relapses or flares (Rumrill & Roessler, 2015). The continual management of these various symptoms of MS contributes to the complexity of juggling health issues while simultaneously navigating typical college responsibilities and opportunities.

A common issue facing college students with disabilities or health concerns centers on the differences between managing their needs at the high school level as compared to the college setting (Daly-Cano, Vaccaro, & Newman, 2015). For example, entering college students will need to identify their health status, register with disability services, self-monitor their health status, and discuss accommodations for optimal success in the college setting (Helm et al., 2009). A parent or guardian that has served as their advocate in the educational setting has most likely accompanied the majority of youth impacted by MS throughout their K-12 career. As students with MS enter college, the responsibility to advocate for resources and accommodations becomes their own (Daly-Cano et al., 2015). In addition, college students are taking over responsibility for more of the medical management of their MS. This process may be particularly challenging for students with MS, as they may be pioneers at their community college or university, paving the way for other students with MS.

College students with disabilities face the challenge of not only managing their disability; they also have the responsibilities related to handling all the in-

formation regarding meeting their individual needs. One issue centers on deciding if they should disclose their disability to others. More specifically, students must decide whom they will tell, how much to share, and when to disclose this information (Trammell, 2009). Kranke, Jackson, Taylor, Anderson-Fye, and Floersch (2013) found that students with non-apparent or hidden disabilities consider three different issues when making the decision to share their disability and request accommodations in the college setting. These factors include the stigma often related to disabilities, the stability of their specific disability, and the worry that their condition will limit skills to achieve academic success. Some college students may decline college accommodations because they are not willing to disclose their disability status due to concerns about what may happen as a result. As Trammell (2009) stated, "Disclosure should lead to accommodation, but it can lead to discrimination, as well." (p. 23). Sniatecki, Perry, and Snell (2015) studied faculty attitudes towards students with disabilities, as well as their level of knowledge and awareness of student disability policies and procedures. Students with hidden disabilities such as mental health issues or learning disabilities were viewed more negatively by faculty members than students with physical disabilities. Additionally, some faculty members reported the belief that offering accommodations may provide an unfair advantage to some college students and compromise academic integrity.

While some challenges facing college students with MS may be visible such as mobility issues, other symptoms may not be outwardly visible to others such as fatigue, depression, vision problems, dizziness, or numbness. Mullins and Preyde (2013) interviewed college students with hidden disabilities. They found that the academic needs of the students with hidden disabilities were met through classroom accommodations, including note takers and text-to-speech capabilities to assist with reading assignments. However, students described several organizational and social obstacles they faced in the college setting, including faculty members' and other students' limited and inaccurate knowledge or experience regarding hidden disabilities. In addition, due to the nature of their disability as not necessarily noticeable to others, the validity of their disability diagnosis was often questioned by others, including doubt that particular supports were even necessary for the college student to be successful.

A common challenge for the typical college student centers on getting adequate sleep (Gaultney, 2010). Some researchers have found that sleep deprivation is a problem facing the majority of college



students, as almost 75% of college students reported problems of sleep disturbances and challenges falling asleep (Buboltz, Brown, & Soper, 2001). Others have stated over 60% have been categorized as poor-quality sleepers (Lund, Reider, Whiting & Prichard, 2010). Eighty-one percent of college students reported getting 6-7 hours of sleep every night or less (Araújo et al., 2013), which does not meet the National Sleep Foundation guidelines of 7-9 hours of sleep each night for young adults aged 18-25 years (Hirshkowitz et al., 2015).

College students with MS face the challenge of managing common sleep issues in the typical college population, as well as considerable fatigue that often accompanies an MS diagnosis (NMSS, 2015). Approximately 75% of all individuals with MS describe high levels of fatigue, as well as reporting fatigue as a symptom that concerns them the most, even more than pain and impairments to physical abilities (Braley & Chervin, 2010).

As more young adults are diagnosed with MS and enter higher education, it becomes increasingly important to understand their needs, and best strategies for supporting college students with MS. Using the results of two studies, this paper examines the following questions:

1. What challenges does MS add to lives of college students?
2. What strategies and resources are most helpful for assisting college students with MS in meeting their educational goals?

In the first study, parents share their concerns about their children with MS navigating the college experience and provide suggestions for assisting students with MS in reaching their education goals. The second study reports on the experiences and perspectives of college students with MS specifically examining aspects of college life MS makes more challenging, coping strategies used to manage the college experience, and perspectives of the usefulness of support resources. Findings from both studies are used to make recommendations for assisting college students with MS as they strive to meet their educational goals.

## Method

This article reports on the results of two studies aimed at gaining a better understanding of the experiences and needs of college students with MS. Study 1 examines parents' perspectives on the educational experiences and needs of their children with an MS diagnosis. Study 2 is a pilot study reporting on col-

lege students' experiences navigating postsecondary education while managing their MS. Results of both studies are used to provide recommendations for supporting college students with MS.

## Study 1

**Participants.** This study includes a subset of participants from a larger study of 42 parents of children with MS examining the impact of pediatric MS on children and families. The insights of 30 mothers and one father of children with MS including three parents of children who have graduated with either a two- or four-year degree, nine parents whose children were currently attending college, four parents of children who were planning to start college in the next few months, three parents of children who started college but dropped out, and 12 parents of children with MS who brought up higher education as an issue of hope or concern for their child during the larger study are included. Parents discussed the experiences of seven male and 24 female children with MS ranging in age from 11 to 33 years ( $M = 17.6$ ) years who had received a diagnosis of MS between five and 19 years of age ( $M = 13.9$ ) and had an MS diagnosis for one to 17 years ( $M = 3.3$ ).

**Procedure.** Information about the study was sent to several professional organizations and support groups serving families of children MS, who then forwarded the information to potential participants. Interested parents responded to an online demographic survey and provided their contact information. The researchers then contacted potential participants to arrange a phone interview. Semi-structured phone interviews were completed by one or jointly with both of the first two authors. Interviews asked parents about their child's and family's experience through the diagnosis process, impact of the disease on the child's family, school, and social life, and parents' hopes and concerns for their child's future. Parents were also asked to identify unmet needs and provide suggestions for professionals working with adolescents with MS in the medical field, schools, and community, as well as advice for parents receiving a recent diagnosis of MS for their child. All interviews were recorded and transcribed verbatim. The results of this study focus on parents' discussions of past, present, and future education related issues.

**Data analysis.** The first two authors read all 42 interview transcripts highlighting all references to higher education in the past, present, or future. Thirty one participants discussed higher education and were included in this study. The first and second authors began the process of coding the data by independently reading all comments related to education and mak-

ing note of initial observations through the process of memoing (Creswell & Poth, 2018). Both authors then re-read the transcripts and developed summary statements (Creswell & Poth, 2018). The second author then used the memos and summary statements to identify issues emerging from data. The first author reviewed the initially identified issues and both researchers worked together to reach consensus on emerging issues and identify common themes connecting these issues.

## Study 2

**Participants.** Information about the study was sent to several professional organizations working with people with MS and to the directors of departments serving students with disabilities at numerous college and universities in the Midwest, who then forwarded the information to potential participants. Twenty-two college students with MS completed the survey online via SurveyMonkey. Demographic information for the participants is provided in Table 1.

**Measures.** Based on existing research on common issues facing college students, coping strategies used by college students, and challenges of living with MS, a questionnaire was developed examining the topics listed below. The questionnaire was piloted by five individuals with MS who provided feedback on the initial survey. The final survey incorporated content and wording feedback from the pilot group.

**Disclosure of MS diagnosis.** Participants were first asked the amount of time between receiving a diagnosis of MS and sharing this information with family members and close friends. They were then asked if they had shared their diagnosis more publicly, and if so, how long after the initial diagnosis did they begin sharing more publicly.

**Added challenge of MS on college life.** Participants were provided a list of 13 common aspects of college life. For each that was applicable, they rated how much they believed MS impacted that aspect of their lives from 1 (*not challenging*) to 5 (*very challenging*). Participants were then asked to discuss any additional challenges they faced at college.

**Coping strategies.** Participants were provided a list of 11 common coping strategies for college students and asked to select all they used to cope with college life. For each strategy selected, they rated the perceived effectiveness of the strategy for coping from 1 (*not effective*) to 5 (*very effective*). Participants could also list other coping strategies not included on the survey.

**Support resources.** Participants were then provided a list of seven resources that might be available to assist them with managing MS and college.

Participants indicated whether or not each resource was available to them and if they used the resource. If they used the resource, they rated the usefulness from 1 (*not useful*) to 5 (*very useful*). For the same resources, participants rated how useful they believed each resource could be if it were available and used. Participants were provided the opportunity to list additional resources they used or thought would be beneficial that were not included on the original list.

## Results

### Study 1

**Themes and issues.** Examining the data for information that could provide insights on how to support and promote academic success for college students with MS, eight issues emerged from parents' discussions of their children's past educational experiences and concerns for their children's future. These eight issues were combined into four broader themes that are presented below.

**Theme 1: Increased understanding of MS by educators is needed.** Parents repeatedly reported that the general public, including educators, know little about MS. People particularly are unaware that children and adolescents can have MS, leading to questions about the accuracy of the diagnosis. Parents felt increased understanding of MS by educators would lead to more willingness to develop and utilize accommodations that would aid in the academic success of their children.

**Issue: Lack of understanding of MS decreased support by educators.** Many parents reported negative experiences with school personnel during their child's K-12 education. Parents shared their concerns regarding limited awareness of educational professionals that MS was even a possibility for students. In particular, several shared that children with MS often do not fit the stereotypical image of an individual utilizing a wheelchair after an MS diagnosis. The often invisible nature of MS symptoms led to their child not receiving the supports they needed to succeed academically while managing MS. As one parent shared,

For teachers...it's not always obvious that someone has MS and that they are experiencing whatever, fatigue or depression or numb feet or feeling like their brain's not working as fast as it should be. All these things are invisible and so, professionals like teachers should be increasing their awareness to provide empathy for students like that.

Another parent of an adolescent, who did not regularly show outward signs of the disease, discussed a situation where the school was aware of the diagnosis and a plan to go directly to the nurse if symptoms began at school was in place. This adolescent experienced a humiliating scenario that also resulted in delayed medical treatment, and ultimately the family's decision to send their daughter to a different high school.

She had gone to her science teacher and told her, 'I need to go the nurse,' that she was having slurred speech. She [the teacher] called the resource officer instead...they took her to the principal's office, and called in her guidance counselor and with the resource officer, interrogated her for two hours before they called the nurse.

*Issue: Understanding of MS was associated with more effective accommodations.* Several parents identified educators who worked diligently to provide accommodations that would benefit their child. In particular, educators who had knowledge about or experience with MS (e.g., had a relative with the disease) were reported to have greater understanding, empathy, and willingness to help students be academically successful.

One parent discussed how a vice principal, whose husband had MS, became a strong advocate for her child. She was willing to use creative interventions to assist the child to be successful. The parent provided several examples of how the vice principal helped create and implement accommodations that enhanced her high schooler's academic success. For example, relapses frequently led to days of missed school for the student. So the vice principal developed the following plan:

The teachers had a GoPro that would get transferred to each classroom. They would wear that in the classroom, basically around their neck, so that it was mostly trained on their face rather than the entire classroom, for privacy. Then [student] could Skype in and she'd see the teacher, and he'd turn it around to show the board when he was doing board work. She could then participate in the conversations, and participate in the class. If she was having severe spasticity she would just send an email.

**Theme 2: Medical needs.** There currently is no cure for MS; however, treatments to keep the disease from worsening are widely used. Parents expressed concerns over their child's medical needs being met while at college. The two most frequently discussed

concerns were over day-to-day medications and access to appropriate medical care when needed.

*Issue: Day-to-day management of MS.* Maintenance treatment options for young adults with MS include a variety of medications with administration ranging from daily oral medications taken one to two times daily; injectable prescriptions administered once a day, every other day, or three times per week; or intravenous (IV) medication received at intervals ranging from once every month to once every six months (Costello, Halper, Kalb, Skutnik, & Rapp, 2017). When facing a relapse, some individuals may require an IV for one to five days completed either as an outpatient or inpatient depending on the severity of the relapse (Narulo, Hopkins, & Banwell, 2015). As adolescents move into adulthood, they become responsible for their own day-to-day disease management. This transition raised concerns for parents.

A parent of one young man who planned to start college in several months, approximately 3 ½ hours away from home reported:

We do his injections, and I guess as we get ready to transition to college, I have to figure out- he is going to have to learn to do them, and we are going to have to figure out how to overnight-ship his medicine, . . . His medicine is supposed to be refrigerated, and I don't want him to feel weird about his little dorm fridge having medicine in it, you know, but I guess we'll figure all that out.

*Issue: Medical care near college.* Several parents discussed changing their child's physicians to professionals closer to where they would be attending college. For example, one parent reported:

So I decided I was going to switch [child's] neurologist from [location a], and now she's going to [location b] and that center. That's in [city], and she's going to be going to college close to there. So I thought, that makes sense.

Another parent felt access to a good medical facility should be part of the child's decision when choosing where he would attend college. "I'm [parent] like, 'first year you're home, but when you do decide to go, please pick metropolitan so I know you're at a decent hospital.'"

*Issue: Relapses.* In addition to day-to-day management of MS, parents reported concerns about the impact of unpredictable relapses on their child's education. Several parents discussed previous negative impacts of relapses on their child's academics. One parent said:



She had her second flare in October, which knocked her out of that semester. She went back and worked to catch up. The second year she went back but she lived at home. She made it about a semester and a half and had to leave because she had another flare. She went out on medical leave and wasn't able to come back. After three months they retracted the scholarship.

**Theme 3: Meeting college demands.** Parents expressed concerns over their child's ability to navigate the demands of college and MS.

*Issue: Balance.* A frequent concern was balancing the symptoms and unpredictability of MS and college as exemplified by one parent who stated, "I think for him it's giving him the psychological tools to navigate college, family, and work as safely as possible for him. It's going to be tough." Some parents were confident in their child's ability to succeed, however that might require slowing down a bit. The parent of a daughter in her third year of college who has had some struggles with meeting the demands of college and of MS reported, "She's doing better with that mentality, realizing that I can still get there, it's just going to take me a little longer."

*Academic supports.* Several parents discussed the types of accommodations their children received at their college or university. Parents generally appreciated the support student disability services were providing for their child. For example, one parent discussed accommodations provided through disability services:

The college was very good about it. You want your books on your computer; they put Dragon Naturally Speaking on her laptop for her for free. You can have a scribe. You can take your tests in the library in a quiet room.

Parents of two students noted positive experiences with faculty. One of these parents said, "He got lucky because his professors, he told them what his condition is. His professors were kind enough to help him, give him extra days, sending in the homework assignments or whatever he needed."

**Theme 4: Future employment.** Parents frequently expressed concern about the long-term impact on their child's ability to hold a full-time job. For example, one parent had the following to say about her daughter:

She's very academically inclined and I don't want her to lose that as she's even moving into college. I think that she is special academically, so do the

teachers, and you wonder, because of the MS, I don't think that, even her neurologist, I think she can still do whatever she wants to do, if we can't get the pain minimized, then I wonder, will she be able to hold a job?

Another parent said:

I'm thinking- we're going to put him through school, and he got in an architecture program, so he should come out and do well, I didn't want to stop him from doing anything he wants to do, but I do worry about his job if he has episodes down the road.

Other parents believed MS had to be consideration for future career choice, as exemplified by one parent:

I want her to get out of high school and go to college and do what she wants to do, but at the same time she has to think about just because her mind wants to do it, it has to be something that her body can do too. Just trying to pick a career that will be accommodating to a possible MS flare-up.

Another parent stated:

She wanted to be a vet tech, but because she has immune suppression, she's been told by certain vet tech schools that that's not possible, so she's rethinking what she can do, and she's also thinking about: "What can I do if I won't be able to walk"?

## Study 2

This pilot study provides an initial look at the experiences of college students with MS. Descriptive statistics of the survey items are discussed. The small sample size limits the ability to examine correlations between variables; however, the results provide initial insights into the experiences of students with MS in the college setting and provides direction for future research.

**Disclosure of MS status.** Participants told some of the people closest to them about their diagnosis immediately ( $n = 19$ ) or within a year of diagnosis ( $n = 3$ ). Participants varied on if and when they shared the information more publicly with only three participants sharing their MS status publicly immediately, three shared more publicly within six months of diagnosis, another three between six months and one year of diagnosis, one between one and two years following diagnosis, one between two and

three years after diagnosis, five have not yet shared publicly, and another six have not shared and do not intend to share publicly.

**Challenges.** Participants identified and rated aspects of college life they believed were made more difficult by MS. Getting enough sleep/rest, managing work and class schedules, health needs/medications, school work, and helping others understand MS were rated as the most challenging aspects of living with MS while in college. Table 2 includes the number of participants reporting MS impacting each area of life and the mean level of additional challenge they believe MS imposed.

Participants were provided the opportunity to briefly expand on challenges. Fifteen participants provided written comments about challenges. Six comments expanded on challenges included on the survey. Two additional comments discussed the intersection of the disease and school; for example, one participant wrote “when having symptom flares and dealing with how to do school work during these periods.” Two others dealt with support resources including not knowing how to get support or feeling support was inadequate:

Push-back from professors on my accommodations, falling behind on work, being so exhausted I only have energy for either attending classes or doing homework, feeling unsupported, constantly and repeatedly having to explain myself, I have a professor that triggers anxiety attacks, accommodations are also inadequate-- we have to essentially negotiate our accommodations with our professors.

Two participants discussed challenges from others not understanding MS. One participant reported:

I have dealt with a lot of ableism from faculty and students. For example, I use a handicap parking space, and I often will be confronted or receive disgusted looks for doing so. It's hard to get people to understand invisible auto-immune diseases.

The other wrote:

Publicly dealing with the side effects of MS drugs when people don't know your diagnosis. For example, on Tecfidera, severe flushing is a side effect - and can more or less strike at any time - so that introduces some complications to socially navigate if people don't know what you're going through.

Additional comments include dealing with keeping health insurance, not being able to keep up with everyone else, and taking care of a pet.

**Coping strategies.** Table 3 summarizes the results on coping strategies participants reported using and the rated effectiveness of each. Sleep, listening to music, communicating with friends and families, exercising, and watching television or movies were the most frequently used coping strategies, as well as those rated as most effective. Participants added additional coping strategies including hobbies such as painting, drawing, swimming, and writing poetry, prayer, meditation, counseling, and using medical marijuana. One participant identified what he or she perceived as a negative coping strategy, “a less healthy coping mechanism is drinking, which I am trying to cut back on,” and an additional participant noted she was not coping well stating, “honestly ‘coping’ seems generous for how I’m doing. I’m going on my second medical-leave and my GPA is probably below a 2.5.”

**Support resources.** Participants reported using an average of three out of seven support services included on the survey with two participants reporting they did not utilize any of the listed support services, seven participants used one or two services, nine used three or four services, and five used five or more services. The most frequently used campus resources included student disability services, campus health services, counseling services, and resources to educate others about MS, with each of these resources being used by half or more of the participants. Of those, student disability services and counseling services were rated as the most helpful resources by those utilizing these services. Face-to-face support groups for college students with MS was reported to be used by only three participants, however it was rated as the most helpful resource. Not all resources were available at all colleges, and even when available, not all participants chose to use them. Participants were asked to rate what they believe the usefulness of each resource would be if it was available and used. Students with MS rated student disabilities services as likely to be the most useful support resource, followed by a face-to-face MS support group for college students, counseling services, resources to share with others to help them understand MS, and an online support group for college students with MS. Table 4 includes the number of participants using each of the seven college resources included on the survey, the mean reported usefulness of each resource by those utilizing, and the perceived usefulness of each resource by all participants, if it was available and used.

## Discussion

With rates of diagnosis of MS in children and adolescents on the rise (Thannhauser, 2014), more students with MS will likely enroll in higher education; as a result, understanding how to successfully assist college students with meeting their education goals becomes increasingly important. Results of the two studies discussed in this paper provide information useful for thinking about strategies that might assist college students with MS.

College students with MS rated getting enough sleep/rest as the number one challenge of negotiating college life with MS. This concern was echoed by parents who were worried about the ability of their child to manage the demands of college and MS. While time management (Misra & McKean, 2000) and getting enough sleep can be a challenge for all college students (Gaultney, 2010), fatigue frequently experienced by individuals with MS significantly amplifies this challenge. Those advising and working with students with MS might keep this in mind when helping students with MS plan their course schedules. For students with MS where fatigue is a major symptom, discussing strategies that might increase the opportunity for students to get the added rest needed to combat fatigue such as taking fewer credits, scheduling classes to allow needed breaks, or considering online options may help students with MS better balance college and managing MS.

In addition, parents expressed concerns over the impact of MS on their child's future career. Some parents reported MS should be a consideration in the career paths their children select. While the impact MS on individuals varies significantly, it might be beneficial for academic advisors to talk with students about their individual symptoms and how different professions may be easier or more difficult to negotiate given their particular situation. College students were not asked about the impact of MS on their future careers. Future research should further examine college students' perspectives on the impact of MS on their career choice.

A primary concern expressed by parents and the third biggest challenge noted by college students, was meeting their medical needs while attending college. To help ease these concerns and to help assure the medical needs of students with MS are met, university health services and student disability services could provide a contact list of local professionals who are available to assist with MS-related medical needs. Working with students on a plan to meet their day-to-day medical needs, as well as a strategy to deal with relapses if they occur while at school, could assist

students with MS in remaining healthy, increasing their odds of academic success.

College students with medical needs or disabilities face challenges deciding if and with whom to share information about their disability. In order to receive accommodations that could help their success, they need to share at least some information about their condition with university staff and their professors. While the majority of college students had shared their diagnosis with close family and friends, results were more mixed with regards to sharing their diagnosis more publicly. Almost half of the participants had not yet shared their diagnosis more publicly, and more than half of those reported that they never intended to share their diagnosis publicly. While participants were not asked why they might not disclose, previous research finds college students are often concerned about the impact of revealing their disability on the way they are perceived by others (Kranke et al., 2013; Trammell, 2009). At least some research suggests there may be good reasons for the reluctance of some college students with disabilities to disclose their disability status. For example, Trammel reviewed research on the impact of disclosure of a disability to university faculty, noting results suggest that disclosure can sometimes do more harm than good by leading to stigmatization and discrimination.

Some of the negative perception may be due to lack of understanding of students' specific conditions (Rao, 2004). Both parents of children with MS and college students with MS report that additional education would be useful for supporting students with MS. Parents reported greater support, resulting in more successful K-12 educational outcomes for their children with MS, when educators had a better understanding of the disease. College students with MS identified resources that help others understand MS as a useful form of support. The results of the two studies presented here, suggest that providing instructors with basic information about MS might help faculty to better understand the challenges and needs of students with MS, which could increase their receptiveness to making reasonable accommodations. Additionally, if students felt university personnel had a better understanding of MS, some might be more willing to share information about their disease helping them to get additional support that could help them be more successful. Finally, there is evidence to suggest many faculty are interested in learning more about effectively working with students with different disabilities, however getting faculty to take the time to attend training workshops is often difficult (Sniatecki et al., 2015).



One possible strategy to increase faculty understanding and support of students with MS might be developing a one-page handout briefly explaining MS and common symptoms of the disease that, if students chose to, they could provide to instructors along with their accommodation letters. Such information might provide some context and rationale for the accommodations the student is requesting, potentially increasing faculty members' willingness to assist the student in reasonable ways. Providing space for students to personalize the information by noting how they are specifically impacted by MS, if a student so chose, might further aid in faculties' understanding of the needs of individual students. Overall, a greater understanding of the disease by faculty has the potential to improve support of students with MS by decreasing stigma, increasing support for the requested accommodations, and possibly contributing to faculty willingness to further develop creative strategies to assist these students. Since students differ in if and how much they want to disclose about their disabilities, it is important to emphasize that it be each individual student's choice whether or not to share information sheets or details about how they are impacted by MS. Future research evaluating the usefulness of such resources could help determine whether this strategy is viewed as beneficial by students and faculty, and if it impacts educational outcomes.

Another strategy to help faculty understand not only MS, but also a wide range of other disabilities that may impact the students they work with, might be to develop a database with information sheets similar to discussed in the previous paragraph. While physically handing faculty an information sheet so they do not have to search out the information themselves is likely to be valuable, providing a webpage with easy to access information about a wide variety of health and disability issues may further support faculty as they work to best support students' academic success.

Evaluating the effectiveness of approaches like those discussed above is an important next step in working to support students with MS, as well as students with a wide range of disabilities. Pilot testing a variety of different strategies for training faculty to determine what methods are most preferred, utilized, and lead to the greatest support for students with disabilities would be valuable for all students with disabilities.

### **Limitations**

The research presented here is a preliminary look at potential challenges as well as possible strategies to help college students with MS successfully reach their higher educational goals. Both studies reported

in this paper relied on self-selected samples through snowball recruitment methods; therefore are not representative of all children or college students with MS. The sample size of study 2 was particularly small for a quantitative study further, limiting generalizability; however, it does provide some initial insights and a starting point for future research. Parents' reports of children's experiences and their concerns for their children's success in college may or may not be similar to children's concerns and experiences themselves. The survey completed by college students, although based on existing research, likely did not capture all the challenges and coping strategies used by college students with MS. Furthermore, the survey measured college students' perceptions of the usefulness of various support services; however, it did not assess how much each resource may or may not have contributed to academic success or a positive overall college experience for students.

The work presented in this paper could be expanded by interviewing college students with MS as they prepare to attend college and throughout their college career. Open-ended questions that allow college students to describe in their own words their expectations, challenges, and supports that helped them navigate various aspects of the college experience, could provide additional insights that would be valuable for identifying strategies that are most effective at supporting students with MS successfully earn their desired degrees.

As we continue to work to assist college students with a wide range of disabilities in meeting their higher education goals, understanding how different conditions impact students' success can help tailor recommendations for individual students. The goal of the studies discussed in this paper was to provide preliminary insights that might be useful for improving educational outcomes for college students with MS. However, by examining the experiences and supports for students with MS, we also provide ideas for strategies that might be generalized to other conditions.

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Table 1

*Participant Demographics*

| Gender                       |    |
|------------------------------|----|
| Female                       | 20 |
| Male                         | 1  |
| Not specified                | 1  |
| Age                          |    |
| 18-20                        | 6  |
| 21-23                        | 8  |
| 24-26                        | 1  |
| 27-29                        | 4  |
| 31-33                        | 2  |
| 36-38                        | 1  |
| Degree Sought                |    |
| Associate                    | 1  |
| Bachelor's                   | 16 |
| Master's                     | 1  |
| Doctoral                     | 3  |
| Other                        | 1  |
| Current Credit Hours         |    |
| Six or fewer                 | 5  |
| 7 to 12                      | 6  |
| 13 to 18                     | 10 |
| 19 or more                   | 1  |
| Living Arrangement           |    |
| At home with parents         | 6  |
| On campus housing            | 2  |
| Off campus                   | 14 |
| Time Since Diagnosed with MS |    |
| Less than 1 year             | 5  |
| 1 to 2 years                 | 5  |
| 3 to 4 years                 | 5  |
| 5 to 6 years                 | 1  |
| 7 to 8                       | 4  |
| 15 years or more             | 2  |

Table 2

*Mean Score on Perceived Challenge MS adds to Common Aspects of College Life*

| Aspect of College Life                     | n  | Challenge Added by MS Mean Score |
|--|----|----------------------------------|
| Getting enough sleep/rest                  | 21 | 3.89                             |
| Managing work and class schedules          | 21 | 3.58                             |
| Health needs/medication                    | 22 | 3.47                             |
| Exams/Tests/Homework                       | 21 | 3.32                             |
| Helping others understand MS               | 21 | 3.00                             |
| Dating                                     | 19 | 2.94                             |
| Socializing and meeting new people         | 21 | 2.89                             |
| Living in residence hall                   | 8  | 2.88                             |
| Personal care (cooking, cleaning, laundry) | 21 | 2.84                             |
| Maintaining friendships                    | 19 | 2.78                             |
| Living with roommates                      | 11 | 2.73                             |
| Communicating with professors              | 21 | 2.42                             |
| Communicating with classmates              | 21 | 2.32                             |
| Accessible transportation to class         | 19 | 2.00                             |

Table 3

*Use and Mean Perceived Effectiveness of Common Coping Strategies*

| Coping Strategy                                       | Number of Participants Using | Mean Rated Effectiveness |
|---|------------------------------|--------------------------|
| Sleeping  | 15                           | 3.86                     |
| Listening to music                                    | 13                           | 3.79                     |
| Spending time/communicating with family               | 11                           | 3.65                     |
| Spending time/communicating with friends from college | 10                           | 3.06                     |
| Spending time/communicating with friends from home    | 9                            | 3.56                     |
| Exercising  | 9                            | 3.25                     |
| Watching television/movies                            | 9                            | 3.00                     |
| Playing video games                                   | 8                            | 3.00                     |
| Reading   | 6                            | 3.00                     |
| Social networking                                     | 7                            | 2.13                     |
| Eating  | 5                            | 2.32                     |

Table 4

*Number of Participants Using and Perceived Usefulness of Campus Support Resources*

| Resource   | Number of<br>Participants<br>Using | Mean Rated<br>Usefulness by<br>Those Using | Perceived Usefulness of<br>Resource if Available<br>and Used ( <i>n</i> =22) |
|--|------------------------------------|--|--|
| MS support group for college students face-to-face | 3                                  | 4.00                                       | 3.50   |
| Student disability services                        | 13                                 | 3.92                                       | 3.73   |
| Counseling services                                | 11                                 | 3.10                                       | 3.23   |
| Resources to share with others to educate about MS | 11                                 | 2.91                                       | 2.91   |
| MS support group for college students online       | 4                                  | 2.00                                       | 3.05   |
| Campus health services                             | 14                                 | 2.34                                       | 2.64   |
| Career services                                    | 9                                  | 2.40                                       | 2.32   |



# A Qualitative Examination of College Disability Services for Students with Traumatic Brain Injuries

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## Abstract

Adolescents and young adults are at relatively high risk for sustaining traumatic brain injuries (TBIs). These injuries can result in persistent disabilities, including a range of cognitive, physical, and social-emotional deficits that can be particularly challenging for college age students. This qualitative study explored disability services for college students with TBIs through interviews with directors of 18 college Offices of Disability Services (ODS). Respondents provided general information regarding their service model, the most common disabilities served, as well as the number of students with TBI served, and more specific information pertaining to services for students with TBI. Results indicated ODS staff members possess a varied range of training and knowledge about TBI and the number of students with TBIs they reported serving at their colleges was not proportional to their enrollment numbers. Five themes emerged regarding services for college students with TBI, and included: self-identification or disclosure of the TBI, cognitive/academic accommodations and services, social and emotional support, transition support, and unique needs of students with TBI. Implications and recommendations are provided for ODS personnel to better meet the needs of students with traumatic brain injuries in the college setting.

*Keywords: traumatic brain injury, college, support, disability services*

A traumatic brain injury (TBI) is a disruption to the normal function of the brain caused by an external force, such as a bump, blow, or jolt to the head, or by a penetrating head injury (Centers for Disease Control and Prevention, 2017). TBIs are a leading cause of death and disability in the United States (Centers for Disease Control and Prevention, 2017; Faul, Xu, Wald, & Coronado, 2010; Taylor, Bell, Breiding, & Xu, 2017). Older adolescents and young adults (ages 15-24) are a particularly vulnerable age group, second only to the elderly in terms of TBI-related hospitalizations and second behind preschoolers for emergency room visits (Faul et al., 2010). Thus, colleges and universities must be prepared to identify and respond to the needs of students with TBIs.

TBIs can range in severity from mild (including those described as concussions) to severe. Most TBIs in college students are mild (about 80%). Such individuals typically are not hospitalized and require a temporary medical plan and academic adjustments during recovery. However, for individuals hospitalized after a TBI, 43% have a related disability one year post-injury (Selassie et al., 2008).

## Effects of TBI on College Students

A student who has sustained a TBI may experience physical, cognitive, and/or social-emotional symptoms (Broshek, Demarco, & Freeman, 2015). *Physical symptoms* include headache, nausea, fatigue, light and/or noise sensitivity, sleep disturbances, and ringing in the ears. Students may easily tire after completing tasks for which they once had more stamina, such as taking tests or doing homework. *Cognitive symptoms* include confusion, memory impairment, inability to concentrate, inattention, slowed processing, and trouble finding words. *Social-emotional symptoms* include irritability, nervousness, emotional dysregulation, social withdrawal, decreased motivation, and becoming easily overwhelmed. Any or all of these issues can adversely affect a college student's academic performance.

A survey of college students with TBI indicated that the majority of respondents had experienced fatigue and headaches, memory loss, executive functioning impairment (i.e., difficulties with organization, attention, and decision-making), and trouble with academics (Kennedy, Krause, & Turkstra,

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2008). These academic difficulties included difficulties understanding assignments, difficulties remembering content from class lectures, and trouble with time-management. Almost all (97%) reported needing to review class material more than they did before their injury, and most (75%) said they did not feel understood by others. Additionally, relatively high numbers of students reported a change in their academic status (67%), a change in their major (44%), and a change in colleges (32%). Students provided a written explanation of the reasons behind these changes, and 69% reported that these changes were due to the TBI. Thus, there is a need for improved understanding of college services and supports provided for students with TBI.

### **TBI in College Students**

The post-9/11 G.I. Bill created an incentive for veterans to attend college (Tanielian & Jaycox, 2008). However, this population of student veterans has experienced a relatively high number of TBIs, as recent military conflicts exposed military personnel to improvised explosive devices, landmines, and rocket-propelled grenades. These explosive mechanisms can lead to traumatic brain injuries through direct hits or indirect blast-related pressure waves (Taber, Warden, & Hurley; 2006; Warden et al., 2005). It is estimated that 25% of veterans enrolling in higher education have hidden disabilities, one of which includes traumatic brain injury (Madaus, 2011; Tanielian, et al., 2008). The intense cognitive demands of college can deplete required mental energy in student veterans who have sustained TBIs, and ultimately lead to relatively high college dropout rates (Smee, Buenrostro, Garrick, Sreenivasan, & Weinberger, 2013). Further, this student population often has comorbid psychiatric issues, including post-traumatic stress disorder (PTSD), compounding their need for disability services (American Council on Education, 2010). Unfortunately, student veterans often do not report difficulties associated with their TBIs because of the negative stigma associated with having a disability.

Student athletes also have disproportionately high numbers of TBIs and tend to underreport their injuries (McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004). Less than half of student athletes report their concussive injuries, often because they do not believe their injuries require medical attention or they do not want to be taken out of games (Davies & Bird, 2015).

In addition to understanding the needs of student veterans and student athletes who have sustained TBIs, personnel in college disability services offices must be aware that other college students may suffer from this invisible injury. College students sustain

TBIs in all kinds of ways, including vehicle accidents, bicycling, intermural activities, gunshot wounds, intentional self-harm, falls, and fights. Most commonly, college students sustain TBIs as a result of motor vehicle accidents. In 2013, an estimated 469,517 people in the 15-24 age group received emergency care for TBIs (Taylor et al., 2017).

### **College Disability Services**

A scoping review of postsecondary education for students with acquired brain injury and other invisible disabilities revealed that most interventions were individualized and focused on building skills, increasing confidence, and developing compensatory strategies via educational adjustments (Venville et al., 2016). However, the study designs generally lacked rigor or were exploratory in nature with small sample sizes (see Childers & Hux, 2016; Hux et al., 2010), making it difficult to compare efficacy of intervention strategies. Further, the need for academic accommodations can fluctuate for years after a brain injury, contributing to the challenge of appropriately serving this study population (Hux et al., 2010).

Twenty years ago, Harris and DePompeii (1997) surveyed 74 public, private, and community colleges in Ohio using a 19-item questionnaire pertaining to college services for students with TBI. Students with TBI accounted for 3% of the population of students with disabilities in public institutions, 5% at community colleges, and less than 1% at private institutions. Two-thirds (66.6%) of the institutions surveyed reported having a manual or pamphlet detailing services provided for students with disabilities; however, less than 7% reportedly listed TBI in the manual as a disability. In that study, many respondents emphasized the need for student self-identification, but they acknowledged that some students with TBI were identified because of an academic issue or a referral from faculty/ student advisors, parents, or pre-service interviews. Few reported that their counselors had sufficient training to work specifically with students with TBI (38% of the public colleges; 23% in community colleges; 6% at private institutions). Common academic supports identified by Harris and DePompeii included: tutors, modification of test formats (e.g., an oral test instead of a written test; multiple choice test instead of essay test; alteration of print size or spacing on the exam), increasing exam time, and the taping/recording of lectures to serve as a memory aid. However, this information represented the practices in one state and is now dated, thereby providing impetus for a current study on college disability services for students with TBI.

## **Methods**

### **Research Design**

The goal of this study was to gather information from offices of disability services (ODS) staff members about college support services for students who have sustained a TBI. This study used an exploratory, grounded-theory, qualitative research design in order to gain a holistic understanding of this issue. The researchers selected this design because generalizations and theory about services and accommodations provided to college students with TBI were limited at the outset of the study (Corbin & Strauss, 2008). Semi-structured interviews were used to obtain information about ODS directors' experiences with college students with TBI, to arrive at the approximate number of students with TBI who were served in different types of institutions, and to gather information on the perceived needs of students with TBI in post-secondary educational settings.

The study was approved by the Institutional Review Board (IRB) at the University of Dayton prior to recruitment of participants. Emails were sent to the coordinators of randomly selected college ODS offices inviting them to participate in the study. This email described the purpose of the study, confidentiality assurances, and the voluntary nature of their participation.

### **Participants**

Participants included a national sample of 18 ODS directors responsible for overseeing accommodations for college students. The researchers obtained a database of schools with offices for disability services from the Association on Higher Education and Disability (AHEAD), as well as through Internet searches. ODS directors who responded to recruitment emails with a willingness to participate in the study were included in the sample and scheduled for interviews until the initially desired sample size of 10 was reached. After an initial round of analysis, the researchers contacted eight additional institutions to arrive at a satisfactory point of saturation whereby much information obtained was redundant. Six participating schools were private; twelve were public. Using the Carnegie Classification of Institutions of Higher Education, participating colleges were designated by size and setting. Of the 18 participating colleges, four were two-year institutions; 14 were four-year institutions. Seven (39%) of the participating colleges were large public four-year institutions. Three (17%) of the colleges were large public two-year institutions. Three (17%) participating colleges were categorized as small private four-year institutions. Two partici-

pating schools were categorized as medium private four-year institutions. The remaining three schools in the sample included a very small public four-year institution, a very small private four-year institution, and a medium sized public two-year institution.

### **Instrument**

Based on prior professional experiences with TBI and the fields of school psychology and higher education, the primary researcher and research assistants developed a semi-structured interview guide. The researchers developed the instrument based on questions raised through the literature review (e.g., some were loosely based on the line of inquiry posed by Harris & DePompeii, 1997). Instrument development occurred through discussions and a series of meetings. Questions were piloted with disability services professionals at the researchers' home institution and were refined accordingly for clarity, sequence, and flow. The guide included a list of questions asked in each interview, and which encouraged participants to talk freely, in line with the exploratory nature of the study. Question topics included: (1) areas in which students with TBI might need assistance, (2) services the ODS provides for students with TBI, and (3) types of professional development received on TBI. After consenting to participation, trained research assistants interviewed the participants by phone. Research assistants were trained through practice interviews. They first conducted a practice interview with the researcher, after which she gave corrective feedback on how to ask questions in a neutral tone and to allow ample wait time before proceeding to the next question. Research assistants then audio recorded practice interviews with individuals at their university. Each interview lasted approximately thirty minutes. Responses were audio-recorded and later transcribed for analysis.

**The researchers' role.** The primary investigator, currently employed at a higher education institution, has had experience studying and working with school-age youth with TBIs. Thus, she took care to avoid biasing the findings with preconceived notions about what disability services office staff members should know and do when working with students who have sustained TBIs. This was done by having trained research assistants administer the interviews rather than doing them herself. She trained the research assistants to deliver questions in a neutral way that allowed respondents to reveal their true thoughts and feelings. The semi-structured interview format facilitated this process because it included general questions and follow-up prompts that encouraged free discussion of ideas.



## Data Analysis

Interpretation of the interview data used an inductive analysis; this involved searching the transcripts for meaningful fragments. These fragments helped develop a categorization scheme and matching codes to sort the data so the researchers could discover patterns and themes. Two reviewers conducted separate analyses, which eliminated potential bias and ensured a high level of inter-rater agreement. They independently reviewed the interview transcripts to initially make sense of the data; they then communicated with each other in order to identify and arrive at consensus regarding overarching categorical themes.

Researchers then coded and extracted each participant's statement(s) relating to the identified categories. Following a preliminary analysis, the researchers reworked and re-coded themes and existing data. The researchers analyzed data yet again to ensure identification of all categories. This resulted in an in-depth, holistic understanding of responses.

In qualitative studies, it is essential to establish trustworthiness of data analysis. In this study, investigator triangulation was utilized wherein each investigator on the evaluation team examined the same interview data (Elo et al., 2014). The findings from each evaluator were compared and discussed in order to develop a deeper understanding of college services for students with TBIs. Different evaluators arrived at similar conclusions based on the same data set, thereby increasing our confidence in the following results.

## Results

Qualitative analysis of interview data resulted in five major thematic categories regarding college services for students with TBI. Themes included self-identification or disclosure of the TBI, cognitive/academic accommodations and services, social and emotional support, transition support, and unique needs of students with TBI.

## Content Analysis

Participants first reported how many students with TBI their office assisted. Some respondents gave exact numbers of students served, others provided an estimate, and still others reported that they did not track the number of students with TBI, so they could only guess how many such students they served. To provide context, total enrollment for each participating college is provided (see Table 1).

Four participating institutions reported that they did not serve any students with TBIs—and one of those universities enrolled nearly 16,000 students. Seven schools (see Table 1) reported having fewer than ten students with TBI or were unsure (e.g., “not sure,

maybe one,” “not sure, a small handful.”). A respondent from a medium-sized private school, for example, reported having only one possible student with TBI:

I worked with one particular student that had been involved in an accident that I guess would qualify as having traumatic brain injury of some sort. Primarily, we track specifically learning disabilities and physical disabilities. We don't really have any records specifically of students that have had a traumatic brain injury.

The broader content analysis further revealed that 67% of the study respondents reported having received little or no education or training related to TBI. Twenty-eight percent reported conducting their own research and in-house training on TBI. Additionally, one respondent from a very small public institution reported that their university's main source of education on TBI came from working one-on-one with students with TBI:

We had a student on campus who had just recently had a traumatic brain injury and had returned to school. He had been in a car accident, and he had some severe cognitive impairments. So, I worked one-on-one with this student, trying to develop some strategies so that he could be successful in school.

Others reported that their education on TBI came from conferences or workshops. A respondent from a two-year community college reported, “I attend conferences on a regular basis, do reading, keep up to date on research.” And a respondent from a large public university also reported attending yearly conferences:

I wanted to make sure that I did enough professional development for myself to be prepared in working with the population, so we're very fortunate. We have, probably within a 5-mile radius, two rehab centers within the area...and I quickly became connected with the state brain injury association and attended, I would say probably in the last 10 years, averaging about 1-2 workshops or conferences a year to really hone my skills and to help me feel prepared working with this population and to be able to assess appropriate and reasonable accommodations as well.

One respondent from another large public university emphasized the importance of professional organizations and national conferences for professional development:



We do professional development all the time on a variety of different things. We're members of the AHEAD association, we are constantly doing professional development in a lot of areas. You know, specific to TBI, spectrum disorders, emotional service animals, whatever the hot topic is, we're reaching out and doing webinars, going to national AHEAD conferences...So I think TBI is included in a lot of things we do.

### **Thematic Analysis**

Based upon the insights gained from these interviews, five themes surfaced related to college services for students with TBI. These included self-identification or disclosure of the TBI, cognitive/academic accommodations and services, social and emotional support, transition support, and differentiation of services.

**Disclosure/self-identification of disability.** In order to serve students with TBIs, the disability services office needs to know such students exist. Unlike K-12 schools, which are responsible for "child-find" (actively seeking and identifying students with disabilities who require special education), offices of college disability services generally wait for students to come to them through self-disclosure of the disability (McGregor, et. al., 2016). Outside agencies refer some students; however, it is still the student's responsibility to seek and utilize services offered by the college. For example, a respondent from a large four-year public institution explained that students "would schedule with us and bring documentation and then we use an interactive process between us... the faculty or staff on campus, and the student."

This process was reported fairly consistently across institutions, as was the fact that it is the student's responsibility to initiate this process. A participant from another large four-year public school elucidated:

We do a lot of publicity during orientation, it's on our website, on the University's website, but because of the way the laws are written for post-secondary education, they have to come to us. So, yep, they walk in, they call, they send emails. But they contact us, we never contact them.

A participant from a small private four year school elaborated thusly:

If a student were to come, which they have, and request accommodations because they have a traumatic brain injury...I would talk with them about their disability and the impact it has on their

learning, and the kind of accommodations they have received in the past...I would give them the application for services and also the disability verification form...We would talk about possible accommodations that might be helpful for them at the college level.

Once students connect with disability services, they are also responsible for talking with professors about the services and accommodations they need, as a respondent from a very small private institution noted:

The students are expected to speak with faculty, tell them they're interested in using the accommodations. Things will not be done for them anymore. Students will have to take responsibility for...whatever it is they're requiring, they have to take ownership of that. Also, anybody in the post-secondary setting is considered an adult, so even if you know their parents are paying for their education, they will be on their own. We can't even talk to the parents unless the student explicitly allows us to. So I'm telling students they have to take ownership of the process.

In addition to identifying students with TBIs via self-disclosure, a participant from a large public two-year institution indicated that "local rehabilitation agencies, home and community, inpatient/outpatient, and transitional living centers that are local to us and familiar with us" refer some students. This college also reported serving relatively high numbers of students with TBI. The respondent emphasized that "Those are our best referrals because they know when someone is ready."

A participant from a large public four-year institution specifically described their college's referral practices for students who have sustained concussions, a type of mild TBI:

We actually have someone in our intercollegiate athletic department who works with athletes with concussion. So if they're going to have symptoms for a week or two, they're going to work with that individual who works with their instructor to provide temporary accommodations. If it looks like it's going to be an ongoing issue, then they're referred to our office for additional types of resources.

The fear of stigma or the desire to seem "normal" may affect a student's decision to disclose a disability and, therefore, affect access to services. For example, the participant from the very small private school called attention to this:

A mindset that I guess is prevalent in high school is that you don't want to have diagnosis because you'll be labeled, so we have some students... they have school counselors who told their parents and then their parents kind of told them not to tell anyone you have a disability because you'll be labeled. And then they go without proper assistance or accommodations so when they get to college, we have to undo that mentality and tell them there is no labeling here.

Similarly, but contextually different, the respondent from a large public four-year school also reported that students did not want to identify themselves or take advantage of accommodations: "the big issue, even with TBI, is the kids don't think they need the help. It's embarrassing to say they need the help, and so they try to avoid coming to get help."

**Cognitive/academic accommodations and supports.** Respondents discussed a range of cognitive and academic accommodations for students with TBI; however, some did not see these needs as potentially different from students with other disabilities (i.e., learning disabilities, ADHD, etc.). A respondent from a large public institution said this about what a student with a TBI may receive: "not anything beyond what is available to them based on their documentation. The main thing kids with TBI need...is they need to be able to do the brain rest right after the injury." The respondent from another large public school reported only one thought, that "memory and vision tend to be the biggest things" requiring accommodations for students with TBI.

The remaining respondents, however, reported multiple areas of need, including cognitive accommodations that help students concentrate, learn, and organize. The respondent from the very small private school discussed how students with TBI often benefit from academic skill coaching, and went further to describe a specific case example:

After the [car] accident she noticed that she could not process certain information and couldn't remember formulas and stuff. I'm thinking that it had some sort of impact on her brain so I had to work with her to coach her how to memorize information without relying on actual numbers. So I'm thinking that potentially it affects the way a person processes information, that it can take different forms so there has to be flexibility in coaching students in how to deal with difficult situations.

The respondent from one of the large public two-year institutions—specifically the one that reported serv-

ing a relatively high number of students with TBI—identified several specific strategies and cognitive processes needed to be a successful student after experiencing a TBI:

Sometimes we'd really like them to just step out of the academics completely and work for a couple semesters with us on memory and reasoning, attention, all of those different areas that we work with, as well as having time to look at some of the assistive technology with them. Some of them really benefit from the screen readers for their books, so that they are hearing the book as well as reading it at the same time [further description of a specific program, in detail]. It really helps their attention and keeps them moving, which really helps their comprehension and retention.

The respondent from one of the large public four-year institutions observed student needs regarding focus, memory, and comprehension, framing this observation within the accommodations her institution provides:

They might need a note-taker or other accommodations such as second set of notes or a peer note-taker, which we can initiate that with the student. They can also use the Smart Pen that we lend out to students. We can provide read-and-write goals software that helps them with comprehension. Extended time for exams, because they often have difficulty with stamina and concentration, allows them to have enough time to refocus attention.

**Social and emotional support.** Associated with the need for cognitive and academic accommodations is the need for social and emotional support. As the respondent from the medium-sized private school explained:

Students with TBI might need access to professional counseling. I think a lot of students with TBI benefit from like a coach counselor, if you will, which is a term for someone who works with the students on academic skill sets that they might be struggling with, like note-taking or test-anxiety.

Likewise, the respondent from the small private institution elaborated, describing a specific case:

Another area would be psychological support, emotional support. This was a very strong student with very high ACT scores and [the student] sustained a blow to the head in an athletic game

and suddenly can't remember a thing of what he's doing. He was totally together, organized, and very independent prior to that, so he also experienced some personal frustration and trying to keep his spirits up about what happened to him. So, for some students, meeting with a counselor too would be very beneficial.

A respondent from a large public four year school also understood that students with TBI are often mourning the loss of their previous skills and identity:

If they just got the TBI, they may not know that it can have long-term effects. Students go through, it's almost like the stages of grief in terms of how you're dealing with learning in a different way. That you're not learning how you used to learn, that you're not the same person you used to be in terms of your skill set. We also have counselors because of this who work with students.

The respondent from another large public institution emphasized the importance of linking the student to multiple campus resources, indicating:

If they're struggling with mental health, mood disorders, referring them to the counseling center, connecting them with a member of a support group and so forth, connecting them with the writing center, learning resource center for tutoring, you know speaking with their academic advisor, speaking with financial aid, housing staff...You know, academics, they're a student first, but what comes with being a university student, you need to have a balance. You need to have a social life, you need to take care of yourself mentally, physically, emotionally, while utilizing the academic supports as well.

The respondent from a third large public institution discussed how a student may need to re-learn who he or she is after experiencing a TBI, an observation highlighting how a student's identity may change after a TBI and how important it is for the student to find out about their changed abilities:

Who am I now? Who am I in the context of my disability? How have I changed? What does that change mean for me and for my cognition, my cognitive abilities? How do I adjust to the new person that I've become?

**Transition from high school.** Fifty percent of respondents discussed the need for a strong transition

process from high school to college. The respondent from one of the large public four-year schools emphasized the importance of self-advocacy in transition:

You have individuals who are in high school that may have already received those accommodations or 504 plans, and those services have always been implemented and they've always had that support. And then you come to college, and they have to self-identify and it puts more ownership and responsibility on the student to really understand okay how do I advocate for myself? How do I utilize these accommodations? And how do I communicate appropriately with my faculty?

Another common point raised when discussing transition was knowing and understanding the differences between academics in high school versus academics in postsecondary education. The respondent from another large public four-year college reported, "probably just the biggest barrier is understanding the differences between what high school is and that K-12 model and the university model. Which is you know, no one is going to call you if you don't come to class." A respondent from a different large public university reported the feeling that this conversation happens too late or not at all prior to postsecondary education, adding that too few people are aware of what all is available to students in college:

Well the biggest issue with transition that we see here as a program is that it begins too late. I contend that if transition processes haven't started by the time a kid is in 6th grade, it's going to be a real uphill battle. So we see families all of the time that come in during the Senior year, and they say, "We're here, you know, ahead of the curve" and I mean we can't obviously say anything, but they are way behind the curve.

The respondent from one of the large public two-year schools also noted challenges with the differences between high school and college expectations and types of programming provided:

With those particular students and their families, one of my roles is to educate them about how the rules of the game change. They may be used to having a program that allowed that particular student that guaranteed them, or tried to guarantee them success. And when they come to the community college system they have to realize that we can provide services and accommodations for them but we aren't going to reduce the workload,

we're not going to extend deadlines to submit a course, we don't have that kind of flexibility, the course has a specific beginning and end . . . Mom and dad calling the professors and expecting to get a response is probably not realistic and it's certainly not going to happen without a release.

**Unique needs of students with TBI.** Respondents from all of the colleges reported how they addressed the unique needs of students with TBI through differentiated accommodations and services. The respondent from one of the large public four-year schools simply said that there was no differentiation in accommodations. The respondent from another large public four-year school said, "there's nothing set out especially for TBI." The respondent from a large public two-year institution reported that, while they do not differentiate for TBI, they do look at and accommodate some unique needs that students with TBI may have:

A student with TBI who might still be having seizure issues might need an attendance flexibility, or even in some cases an attendance contract in which assignments and tests get alternate due dates, in case a person is not able to come that particular day. They may be more likely to get approval for a memory card than some of the other students.

The remaining 83% of the respondents indicated that they provide different services and accommodations for students with TBI than for other categories of disabilities. For example, the respondent from the very small public four-year school discussed how the cause of the brain injury might affect needed accommodations:

If you have an individual who's been in a car accident that has a traumatic brain injury, they may not have the psychological [trauma]...like that of a student who may have returned from a war zone. And they may not have the same type of physical injuries, so it really does depend. But, a lot of times those individuals will need support, and that's the key component.

Another elaborated on how they mapped specific accommodations to symptoms:

I had one guy who had chronic headaches, and he had requested to have cold drinks during his exams. And so I was able to clear that, as it seemed to help his headaches. I have more that have been

sensitive to noise, and they may be approved to listen to headphones with relaxation music that we provide.

A respondent from a large public four-year school gave a detailed response on matching accommodations to symptoms. While this is typical for any student with a disability, the respondent gave a number of specific examples related to TBI, including the following:

A student who is presently having difficulty getting through the reading material because they can't exert that mental effort without getting extremely fatigued, we'll make them eligible for electronic text, which is essentially like an audiobook.

Most of the respondents reiterated these types of supports, some indicating that "many of the accommodations are similar for students with learning disabilities or psychological disabilities, it just depends on the student," or "really, well it would depend on what the student needs...a lot of that again goes back to assessing that student; that allows us to craft something on a case-by-case basis that might assist that student."

## Discussion and Implications

Interviews with lead staff members in college offices of disability services revealed a wide-range of understanding and available services for students with TBI. Respondents had inconsistent perceptions about the needs of students with TBI. Some believed students with TBI have the same needs as students with any other disability. Conversely, respondents who demonstrated greater knowledge of TBI better understood that students with TBI have unique needs.

**Improve training through professional development.** Although colleges are required to follow the Americans with Disabilities Act (ADA) and the legislation included as part of the Rehabilitation Act of 1973 (United States Government Accountability Office, 2011), most participants in a previous study of college students with TBI reported receiving inadequate or no services at all during college (Tobis & Glang, 2008). This may be because personnel in their college's Offices of Disability Services (ODS) received little or no training to help them understand and serve students with traumatic brain injuries. Participants in this study discussed developing their professional skills by attending conferences, workshops, and webinars, by staying up to date on professional literature regarding postsecondary education and students with disabilities, and by holding membership in professional organizations. Professional develop-



ment for ODS personnel is vital in maintaining up-to-date professional knowledge and developing skills to best serve students with TBI (Glang, Todis, Sublette, Brown, & Vaccaro, 2010). In addition, it is the responsibility of the ODS to provide training and expertise regarding disability issues to members of the campus community.

**Improve number of students served.** The number of students with TBI identified at participating institutions varied considerably. This is due to the wide range of institution sizes represented in this study, from small colleges to large universities, as well as differences in academic rigor from college to college. Students in less rigorous programs may not demonstrate as great a need for accommodations.

Interestingly, respondents from smaller colleges generally had more knowledge of TBI and reported serving relatively higher numbers of students with TBI than did those respondents from many of the large four-year institutions. This could be the result of having smaller caseloads and more opportunities to participate in a student's postsecondary transition plan during high school (Joshi & Bouck, 2017; Newman, Madaus & Javitz, 2016). A smaller caseload would allow staff members to have a stronger connection with students to better individualize accommodations to their identified needs. In addition, this might allow for more targeted professional development for staff members regarding their legal obligations to provide accommodations, which can lead to services that are better tailored for students with TBI.

One participating university, a large public two-year institution, provided an entire specialized program for students with TBI. This program featured non-credit classes to help students adjust to the postsecondary setting while focusing on functional life skills, an accommodation recommended in some studies (Hillary et al., 2003). This yearlong program provides structured cognitive retraining focused on improving attention, concentration, memory, language skills, and reasoning skills. Counseling helps students form personal, realistic goals as well as combat feelings of depression, isolation, and alienation through teaching critical thinking skills, organization, and emotional adjustment and applying them to real-life situations. Replication of such a program at other institutions could help improve the number of students with TBI served and the services provided.

**Self-advocacy.** TBI is typically an invisible injury; the areas of deficit are not always readily apparent to others. Often students with TBI "seem fine" and have many skills and abilities that are intact—or even above average. A potential barrier for college students with TBIs identified in this study is that they

must self-advocate, which can be particularly difficult when one has a hidden disability and wants to appear "normal."

During high school, many students with TBI received help from their parents and through individualized classroom experiences. College classes tend to be larger and less individualized, making it more difficult for students to access professors for extra help (Tobis & Glang, 2008). The help students previously received from their parents may have included advocacy, which college students are expected to do independently. For many students, college involves less structure and more unsupervised free time. The lack of structure can lead to confusion and/or frustration, particularly for students with TBI (Kennedy & Krause, 2011). The unsupervised free time can lead to students participating in activities, such as intramural sports, that could re-injure the brain while it is still healing. Self-determination, or the ability to motivate and provide for oneself, is an important predictor of postsecondary satisfaction. Financial independence, job security, and community engagement are all parts of a healthy and productive life, and are all affected by self-determination (Shogren et al., 2015). Thus, actively teaching students to self-advocate and self-regulate can assist them in accessing and utilizing helpful services as well as protect them against re-injury.

**Academic accommodations.** Many colleges provide individualized accommodations for students with disabilities. Such accommodations include testing in distraction-reduced environments, providing breaks as needed, arranging for extended time on tests, providing priority seating, recording lectures, and offering priority registration. Other common accommodations and methods of assistance include allowing alternate answer format, delaying exams, providing frequent instructor feedback, allowing a longer response time for questions, reducing course loads per semester, offering course substitutions, tutoring, and vocational counseling (Gioia, Glang, Hooper, & Brown, 2016). Some assistive technologies that might be provided include audio recorded lectures, computer software, and scribes. Such accommodations may also be useful for students with TBI, but few experimental design studies have specifically examined the efficacy of accommodations for college students with TBI.

For students with TBI who are still experiencing fatigue while recovering from a recent TBI or who are still experiencing long-term symptoms of a TBI, accommodations such as attendance flexibility, adjusted due dates, and a reduced workload can be important (MacLennan & MacLennan, 2008). A few respondents

mentioned assisting students with scheduling to help them plan a reasonable course load for their specific needs. Consistent with previous research, participants frequently reported accommodations such as audio recorders for classes, volunteer note takers, memory aids, and extended time as helpful and important for students with TBI in helping them cope with related cognitive deficits and memory impairment (Kim, Lee, & Jang 2015; Maclennan & Maclennan, 2008).

**Social-emotional support.** In addition to academic accommodations, it is important that colleges provide social-emotional support for students who have sustained TBIs. As one respondent indicated, students may not understand who they are after sustaining a TBI. They may now struggle with social skills and/or have difficulty regulating their emotions. To address these issues, some participants reported providing counseling for students. Brain injury counseling can help establish the cause of emotional changes and reassure family and friends, while equipping the student with better coping skills. Efficacy of counseling after TBI can depend on the student's level of cognitive functioning. It is important to consider how counseling/therapy can be adapted for each person with TBI, depending on the pattern and severity of cognitive difficulties. Over time, counseling can lead to improvements in relationships, solutions to specific problems, and decreased feelings of distress.

**Transition planning.** In addition to students with TBI who had IEPs in high school, colleges may also have two other types of students with TBIs on their campus: (1) Those who sustain TBIs during college, and (2) Those who previously sustained brain injuries but were not identified for K-12 services. Such students may face significant difficulties once they transition to college, largely due to the increased expectations for self-regulation and higher-level thinking. Other students falling into this category include veterans who sustained TBIs in combat prior to going to college.

Service providers must place emphasis on family engagement in the transition planning process, as the family of the student will be the main support system after he or she leaves high school. Martinez, Conroy, and Cerreto (2012) found that 60% of parents reported they did not know of or never saw a transition plan for their child. School psychologists and school counselors can facilitate family engagement in post-secondary planning, encouraging full participation in decision-making.

School psychologists can also collaborate with teachers to promote regular classroom contribution from their students who have disabilities (Shogren et al., 2015). Providing direct intervention for students

and consultation to families and teachers facilitates the development of self-determination skills and prepares students with TBI for postsecondary success.

**Differentiation of services.** It is essential for faculty and staff working closely with students with TBI to have a sound understanding of the needs of the student. Disability service offices should be in contact with professors, coaches, and other administration in order to relay important information about the student and his or her needs. In addition, advanced planning to incorporate universal design for learning (UDL) into the curriculum may be a help to students with traumatic brain injuries. UDL describes a system of setting up the learning environment in a way that supports all students, especially those with disabilities, and gives equal opportunities to be successful (Scott, McGuire & Foley, 2003). UDL recognizes that building flexibility into the course syllabus and course expectations up front may mean more effective learning opportunities for all students. In the long run, using UDL may also lessen stress for students who require accommodations, but who may not identify such a need until the semester is underway (Griful-Freixenet, Struyven, Verstichele, & Andries, 2017). Preparing for flexibility leads to improved retention and ultimately greater student success.

## Limitations

While an important goal of qualitative research is to reach theoretical saturation, it is unlikely that this current study succeeded in doing so. The goal of saturation is to continue interviewing more participants until every possible answer is recorded. Despite discovering some common themes, it is impossible to tell if all possible responses and themes were uncovered, and it is unlikely researchers will reach this ideal (Guest, Bunce, & Johnson, 2006).

An important limitation that may have affected the results of the current study pertains to the sampling method employed. Some ODS recruitment leads were likely more apt to respond to the initial email because they have programs for students with TBI or a special interest in this topic area. Further, the nature of the semi-structured interview could have led participants to tailor their answers to what they expected the researcher wanted to hear. Phone interviews, rather than face-to-face, further complicated this potential limitation, as the interviewers could not observe respondents' non-verbal communication behaviors. Finally, several of the interviewees ran out of time due to participants' schedules. Unlimited time may have led to more rich and varied data.

### Implications for Future Research and Training

This study explored college disability services for students with TBIs; results are valuable for college ODS providers, professionals involved in transition to postsecondary institutions, and students with TBI. Future studies might examine other stakeholders' perspectives such as parents, students, and professors, rather than only from disability services directors. This data triangulation could help strengthen the validity of our results by providing data from different sources of information. Another approach might be to utilize methodological triangulation by including focus groups or quantitative methods, such as surveys. Next, researchers should conduct further examinations of services and accommodations for successful completion of postsecondary degrees. With these studies, researchers can develop a guide for students and universities to help students with TBI be successful in post-secondary education settings.

Lead ODS staff members reported a wide range of training and experiences in serving students with TBIs. Educating respondents from offices of disability services on the specific needs of students with TBIs might enhance the quality of services and accommodations provided. Increasing awareness of TBI and the unique needs of students with TBI in a college setting through online training and webinars, as well as in-person training sessions, is an achievable starting point. Offices of disability services should examine and evaluate their services offered and determine if improvements are needed in order to adequately serve students with traumatic brain injuries on their campus.

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Table 1

*Reported TBIs by Participating Colleges<sup>1</sup>*

| Participant | Total Enrollment <sup>2</sup> | Reported Number of Students with TBI |
|-------------|-------------------------------|--------------------------------------|
| College 1   | 51,150                        | About 50                             |
| College 2   | 21,860                        | 15 to 20                             |
| College 3   | 960                           | 1                                    |
| College 4   | 13,430                        | 6 to 8                               |
| College 5   | 11,315                        | 200 <sup>3</sup>                     |
| College 6   | 29,045                        | 100 to 120                           |
| College 7   | 58,325                        | Not Sure                             |
| College 8   | 50,080                        | About 65                             |
| College 9   | 18,620                        | 30                                   |
| College 10  | 1,200                         | 2                                    |
| College 11  | 4,575                         | Not sure; maybe 1                    |
| College 12  | 760                           | Not Sure; don't know of any          |
| College 13  | 3,475                         | 0                                    |
| College 14  | 3,980                         | 0                                    |
| College 15  | 2,200                         | 0                                    |
| College 16  | 15,670                        | 0                                    |
| College 17  | 1,675                         | Not many; a small handful            |
| College 18  | 19,205                        | 9                                    |

*Notes.*<sup>1</sup>According to the interview respondent.<sup>2</sup>Obtained from <http://carnegieclassifications.iu.edu/lookup/lookup.php>; rounded to nearest 10.<sup>3</sup>Institution has a specific acquired brain injury (ABI) program.

# Experiences of Students with Physical Disabilities in a Summer Internship Program

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## Abstract

Despite higher education becoming more accessible for students with disabilities, these students are often still unable to accomplish one of the most basic goals for obtaining a college degree: successfully obtaining gainful employment after graduation. This article provides an overview of a qualitative study which examined the experiences of college students in an internship program designed specifically for students with physical disabilities. The findings of this study indicate students developed vital skills and competencies which facilitated personal and career development. Through their participation in the internship program, students reported feeling better prepared to enter the workforce after graduating. General career services often fail to address the additional barriers students with physical disabilities face when attempting to secure employment after graduating from college. Through hands-on work experience and exposure to real life work environments, students reported feeling more confident about their abilities to not only get hired, but to thrive in the positions in which they were hired. Intentional efforts designed specifically to enhance the career readiness of students with physical disabilities are integral to the continued success of this population of students.

*Keywords: students with disabilities, physical disabilities, internship, employment*

While the number of students with disabilities matriculating to college is steadily increasing (Eckes & Ochoa, 2005), they are still struggling to be employed after graduation at the same rate of their able-bodied peers (Oswald, Huber, & Bonza, 2015). With this in mind, Ball State University's offices of Disability Services and Career Services, partnered with Eskenazi Health in Indianapolis to create the Initiative for Empowerment and Economic Independence (IEEI). A goal of the IEEI program is to give students with physical disabilities the opportunity to develop critical personal and career skills which are vital to a successful transition to the working world.

This study focused on how participation in an internship program, specifically one designed for students with physical disabilities, prepares students for a successful transition from college to employment. Schlossberg (1984) discussed how several factors can contribute to successful, or failed, transitions. Individuals who are familiar with their environment, who are confident about themselves and their abilities, and who receive adequate support, are more apt to make

a successful transition. To support the transition of a student with a physical disability from college to employment, the IEEI program gives interns the opportunity to be immersed in true work environments. Interns are able to experience how their disability affects them in the workplace and how they can adapt. Being able to navigate the workplace instills a sense of confidence among interns, as they begin to realize their disabilities do not limit them, despite what they, and others, may think.

## Review of Related Literature

This review of related literature grounds this study in Schlossberg's (1984) work on transition as the theoretical foundation; it then provides an overview of the history of students with disabilities in higher education; and concludes with a discussion of the importance of internships that lead to employment.

## Transition

Schlossberg (1984) described transition as an

<sup>1</sup> Le Moyne College; <sup>2</sup> Ball State University; <sup>3</sup> Eskenazi Health

event, or non-event, which occurs in an individual's life which creates change, especially in the areas of work, family, wellness, and finances. These transitions can be anticipated, unanticipated, or non-event transitions. An anticipated transition is an event in which an individual expects residual change to occur, such as marriage or starting a new job. While anticipated transitions typically have more positive outcomes, each transition type can affect individuals differently based on the amount of stress the transitions cause, as well as the person's ability to manage the stress. Schlossberg identified four factors, the Four S's, which can affect an individual's likelihood to cope with change: situation, self, support, and strategies. Schlossberg's work can be used in relation to a person's transition from college to employment. The transition to employment is a significant life event that brings a great deal of change to a person's life. While the transition is an anticipated event, individuals may still have inadequately prepared to make such a transition. To make a successful transition to the workforce, it is vital for students to possess adequate skills in each of the four categories.

**The four S's.** *Situation factors* describe how a person evaluates the transition and their control over what is happening in the transition (Patton, Renn, Guido, & Quaye, 2016). The impact this factor holds on an individual depends on how long the situation is supposed to last, if the change is positive or negative, and if there are other challenges which enhance the stressors with this change. *Self-related factors* are personal and psychological incidents which affect transition (Patton et al., 2016). Personal characteristics like age, socioeconomic status, ability, and gender can shape how an individual manages change and goes through transition. Psychological characteristics are how an individual's personality and mindset shapes their transition process. *Support factors* rely upon an individual's social aspect which reaffirms positive support and feedback (Anderson, Goodman, & Schlossberg, 2012). The amount of support an individual receives from friends, family, mentors, and outside sources can significantly impact how they handle change. *Strategies* are the ways in which an individual copes with stressors and changes (Patton et al., 2016). This usually refers to an individual's reactions to their environment. Anderson et al. (2012) suggested there were four coping strategies which an individual can use to transition successfully: information seeking, direct action, inhibition of action, and intrapsychic behavior.

### Students with Disabilities in Higher Education

The passing of the Section 504 of the Rehabilitation Act of 1973, and later the Americans with

Disabilities Act (1990) and subsequent ADA amendments act (2008), paved the way for students with disabilities in higher education. In 2008, more than two million college students in the United States reported having a disability, a significant increase from approximately 1.4 million students who reported having a disability just eight years earlier in 2000 (United States Government Accountability Office, 2009). Of the students who reported having a disability, approximately 29% of them reported having a physical disability, which includes mobility or orthopedic impairments. Colleges and universities across the United States have worked diligently to make their campuses more welcoming to students with disabilities (Getzel & Thoma, 2008). Not only are campuses becoming more physically accessible, but many are now establishing programs designed to address issues of persistence and retention by supporting students who are struggling academically. However, few institutions provide services geared towards preparing students with disabilities, especially those with physical disabilities, for a successful transition to life after college.

More than ever before, a college degree is a requirement for employment, and is evidenced in a study which found a four-year degree is positively correlated with employment rates (Stodden, Dowrick, Anderson, Heyer, & Acosta, 2005). However, while the number of students with disabilities attending college is steadily increasing, college graduates with disabilities are failing to be employed at the same rate of able-bodied graduates. College graduates with disabilities are being employed at a rate of 52.7%, while the employment rate for able-bodied college graduates is 83.7% (Oswald et al., 2015). Further, it has also been estimated that less than 15% of those with physical and communication disabilities who utilize augmentative and alternative communication are employed (Bryen, Carey, & Cohen, 2005).

However, the high rates of unemployment are not indicators of unmotivated individuals, as career aspirations among students with physical disabilities are actually rather high (Babbitt & Burbach, 1990). In a study measuring these career aspirations, approximately 15% of study participants reported their ideal employment to fall within the category that encompasses corporate executives and doctors. Moreover, 79% of participants reported their ideal employment to be in the category which includes careers like business managers and educators. In the same study, 95% of participants reported the desire to help others through their careers as being "very important," or "important." To successfully advocate for students with disabilities, it is necessary for career and disability services staff to understand these aspirations.

However, Altschul and Michaels (1994) found some employers struggle to recruit students with disabilities. Recruiters coming to college campuses were not finding students with disabilities interested in the positions for which they were looking to hire. This can be frustrating for employers who come to college campuses hoping to reach students populations which they would have a difficult time reaching otherwise. Students are assisted by professionals with little or no experience of students with disabilities or may work with disability agencies who solely focus on finding entry-level jobs for students, when students may have the qualifications for other employment. Oftentimes, students with disabilities are being pushed towards careers outside of their course of study, and are led to look for employment for which they are extremely over-qualified because of misconceptions about their abilities to work. Further, only 26% of two- and four-year institutions provide specific career services for students with disabilities. Students are not receiving the support they so desperately need in addressing the barriers which they face when attempting to join the working world.

Most work environments are not designed to be accessible for those with disabilities, which can force people with disabilities to work in an environment improperly suited for them (Williams & Mavin, 2015). Some individuals with disabilities ask for accommodations, while others will learn to work without them. For example, using a keyboard can be very difficult for people with physical disabilities (Obringer, Coffey, McFadden, Etheridge & Pounder, 2007). Modifications must be made to provide an adaptive keyboard, and word prediction software can be a helpful tool because it significantly reduces the number of keystrokes needed. Because so much of the working world relies on computers and other form of technology, adaptive technology would be extremely useful for employees needing this type of accommodation.

Career services professionals need to understand the importance of knowing the specifics of reasonable accommodations and undue hardships (Roessler, Hennessey, Hogan, & Savickas, 2009). During a job search, applicants are not required to disclose a disability unless an accommodation is needed to assist in the application progress. Transitioning from higher education to the workplace goes beyond identifying resources for success; it requires identifying interests and skills and applying them to the working world. Those who make it past initial interviews and are hired may still face discrimination based upon a request for a reasonable accommodation. Because individuals with disabilities are not required to disclose their disabilities during the application process, it be-

comes important for career service professionals to prepare students to disclose their need for accommodations during the interview process to prevent problems down the line.

### **Importance of Internships**

A significant amount of career development activities, such as an internship, increases the chances of obtaining desirable employment upon graduation from an institution of higher learning (Blau, Pred, & Andersson, 2015). Fei-Chuan, Ku, Yi-Hwan, Fei-Hung, and Shuo-Shiung (2009) found that internships are an excellent opportunity for students to use theory learned in college courses in an authentic setting related to their field of study. Benefits obtained from internship experiences include networking and authentic job-related experience. "Practicums and internships support skill development, networking opportunities, and relevant experience that can lead to job opportunities" (Oswald et al., 2015, p. 377).

However, interns are not the only ones to benefit from internships, as an internship allows an employer to gain insight and knowledge of the work habits for potential full-time employees (Wesley & Bickle, 2005). The success of interns working independently can predict an individual's professional work style. For example, those who prefer close supervision or working in collaboration with others will be good for employers requiring copious amounts of group work. Moreover, internships are most beneficial to the intern when the project assigned to them is genuinely important to the host organization (Hindmoor, 2010). Meaningful works creates a sense of value for the intern, as the least rewarding internship experience is one self-driven by the intern.

**Internships for students with disabilities.** Collaborations between career services staff and disability offices are the best option for creating internship opportunities for students with disabilities (Madaus, 2006). Positive relationships and good communication between faculty members, student affairs educators, and career services professionals can create a well-rounded system for locating experiential education, such as internships, for students with disabilities (Nott & Zafft, 2006). It is imperative for these collaborating educators to create policies and procedures aiding the access to internships and practicum experiences for students with disabilities. A good relationship between these professionals will help students to learn skills in self-advocacy, which can help them to successfully gain meaningful employment following graduation. Internships provide an experience for students to interact with a real employment setting, as this allows for the individual to discover their



strengths and weaknesses in employment before entering a job full-time. Papasotiriou and Windle (2012) observed if universities do not invest in opportunities to aid students with disabilities in areas such as employment and accessible transport, they will not have an opportunity to build positive relationships or live a life of independence.

Despite higher education becoming more accessible to students with disabilities in recent years, students with physical disabilities continue to be one of the most marginalized groups in both the educational and professional worlds. In 2003, less than 40% of adults with disabilities between the ages of 16 and 64 conveyed being employed (Stern & Brault, 2005). While higher education has become more attainable, the employment rate for college graduates with disabilities is only 52% (Oswald et al., 2015). It is encouraging that students with physical disabilities are attending college more than ever before, but degrees are rendered meaningless when students are not successfully finding employment after graduation. Career services within colleges and universities provide general resources for career preparation, but only 26% of institutions provide services specifically for students with disabilities (Raue & Lewis, 2011). It is also important for any student to participate in internships and practicums to develop skills, create networking opportunities, and provide relevant experience which could ultimately lead to job opportunities (Oswald et al., 2015). The purpose of the study was to examine the effectiveness of an internship program designed specifically for students with physical disabilities.

## Methods

This IRB approved qualitative study was framed as a phenomenological study that “discusses the essence of the experience for individuals incorporating ‘what’ they have experienced and ‘how’ they have experienced it” (Creswell, 2013, p. 37). Phenomenological researchers want to gather information about their subject’s perception of a phenomenon.

### Participant Attributes

The population in this study was ten undergraduate students with physical disabilities at Ball State University who participated in the summer internship program at Eskenazi Health in Indianapolis. Participants were recruited for this study using convenience sampling, a non-probability sampling technique, where study participants were selected based on inclusion/exclusion criteria and availability to the researcher (Babbie, 1990). The research team was assisted by the director of the university’s Disability

Services office in identifying students who met the participant requirements. All members of the population were contacted via email and five students agreed to participate in the study. Three of the participants were wheelchair users, and two of the participants had significant visual impairments. Three participants were male, two were female, and all participants were Caucasian.

### Data Collection

The data for this interview were collected through a series of semi-structured interviews because the nature of open-ended questions allows study participants to provide honest and extended responses regarding their experiences and viewpoints (Turner, 2010). A panel of experts, consisting of disability services educators and faculty members skilled in qualitative methodology, assisted in the development of an interview protocol. The researcher also utilized peer debriefing through conducting a mock interview. Interviews lasted between 30 and 60 minutes; four of the interviews were completed in person at mutually-agreed upon locations, and one was conducted over the phone. Interview questions were open-ended with the intent of capturing the participant’s perceptions of the benefits of their internship experience. Interviews with the participants were digitally audio-recorded and transcribed verbatim at the conclusion of the interviews and resulted in 51 pages of transcript data. Participants were assigned pseudonyms during the transcription process to maintain their confidentiality.

### Data Analysis

Data analysis was conducted in alignment with a phenomenological approach, whereby the research team sorted through the collected data and highlighted specific elements that provided further insight about the phenomenon at hand (Creswell, 2013). Further, analysis was facilitated by a general process of “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (Bogdan & Biklen, 2007, p. 145). The research team analyzed the transcribed interview data to look for emerging themes and patterns across the participants’ interviews. After the data were divided into categories, interpretations and recommendations were made relative to the success of the internship program preparing students for employment post-graduation. The researchers used Lincoln and Guba’s (1985) approach to establish trustworthiness of the data, establish credibility (prolonged engagement and persistent observation), transferability, dependability, and confirmability.



## **Findings**

Five students participated in the study. Brandon, a student who has quadriplegia, was studying computer technology and was placed in an IT department. Brandon chose to participate in the internship program because he was aware of the integral role internships can play in securing a job, and he wanted to gain hands-on experience in the workplace. Paul, a visually impaired student studying public relations and creative writing, was placed in the hospital communications office after expressing the desire to get more writing experience in a professional work environment. Aside from professional goals, Paul was hoping to gain experience “living on [his] own in a city where [he] had never lived before.”

The interns reported developing critical personal and career skills at nearly every phase of the internship process. Before the internships even started, students were required to work with the university's career center to develop a resume and practice interviewing techniques. Students were asked to evaluate their strengths and weaknesses, as well as to develop their own career goals. This allowed students to truly have autonomy in crafting their future internship experience. They had the opportunity to align their internship experiences with career goals, ensuring the students were completing meaningful work to both them and their employers. Students also gained experience in disclosing their disabilities during the interview process, as well as becoming familiar with how their disabilities would affect them in the workplace. Perhaps the most crucial element of the internship program was the sense of confidence it instilled among the interns. Interns expressed feeling unsure how they would be viewed by coworkers, and were not sure how their disabilities would play into their experience. However, the interns reported feeling an overwhelming sense of acceptance from their coworkers, and had positive outlooks about searching for employment in the future.

### **Pre-Internship Considerations**

While the students were recommended for the internship program, they were still required to go through an interview process. Students reported being asked to provide a resume as part of the interview process, and they were encouraged to utilize services at the university's career center to develop their resumes. Students also had to complete an additional application for the position. During the interviews, students were asked what they felt their strengths were and, based on their goals, in which department they might like to be placed for their internships. Most students

were placed in departments which aligned with their career goals.

Others whose career aspirations could not exactly be integrated into their internship experience were placed in departments where they could learn transferable skills. One student, Theresa, a student with a visual impairment studying Elementary Education and Special Education, was placed in an institute for professional development. Theresa believed her placement in that department was beneficial to her future career as an educator because “you still write objectives and create presentational aids, and you plan out what you're going to talk about and what activities you're going to do in professional development.” She added, “it was basically all the components of teaching, just with adults, rather than children.” Another student, Logan, a Political Science major with cerebral palsy, chose to participate in the internship program because he felt “It's not enough to just say, ‘hey, here's my degree.’” Logan expressed interest in writing policy and was ultimately placed in the grants department at Eskenazi. Laura, a student with cerebral palsy studying Psychology, had not identified an exact career path for herself, but knew she wanted to do something that involved counseling. She was placed in a clinic that provided inpatient mental health counseling.

**Living arrangements.** One of the most significant aspects of preparing themselves for the internship was finding living accommodations for the duration of the program. The hospital partnered with a local university to provide housing for the interns throughout the duration of the program. The cost of housing was covered by the internship program, and interns were able to live in campus apartments free of charge. Three interns, Theresa, Paul, and Logan, lived in the campus apartments. They worked with the program coordinator and the housing director on the accessibility of the apartments, and were provided information regarding the amenities and layout of the apartments.

However, students who relied on attendant care had to decide how that would factor into their living arrangements. Laura and Brandon made the decision to commute to their internships from home. Brandon looked into hiring someone to provide attendant care in Indianapolis, but it proved to be too difficult for him to arrange. He made an hourly commute from home daily where he had help from his mother and a local attendant care service. Laura also decided to make the commute because her mother lived closer to Indianapolis, which made her feel at ease because she knew she could rely on the people who would be transporting her to and from her internship.

Logan, who decided to stay in the campus housing, found a local service to provide attendant care during his internship. However, Logan had a negative experience with the service. Attendants often showed up late or were careless in getting him ready for work. Not only did this make Logan late for work, but there were times where he had been haphazardly dressed, with buttons undone and some articles of clothing on backwards. Logan was embarrassed about the situation and worried how it would reflect on his performance as an employee, but felt that his boss was extremely understanding that some things were beyond his control. Logan learned that in the future, it would be necessary for him to be diligent in finding reputable care so that it would not impact his ability to work. He also came to realize that he will ultimately be the person held responsible for anything that would prevent him from getting to work, making it even more important to hire reputable care workers. The interns' living arrangements played a significant role in their internship experience. Students who had reliable care and transportation, or who were able to get themselves ready for work on their own, did not face the same stress in the workplace as Logan did. An external circumstance caused Logan additional hardship in his internship. While it made it difficult at times, it did not prevent him from ultimately being successful in his position.

### **Internship Experience**

Participants reported being nervous about their internships because of the uncertainty of how their disabilities might affect their jobs. However, it did not take long for the interns and employers to settle into a routine. Employers and interns took the first weeks to gauge what the interns were capable of performing, as well as the time in which they were capable of completing those tasks. Brandon described it as a learning experience for both the employer and the intern. Logan, whose fine motor skills are compromised by cerebral palsy, had more difficulty typing or navigating computer programs than someone who is able-bodied. While it sometimes took Logan longer to complete a task, his disability in no way affected the quality of work he provided. While employers took the time to identify and understand the capabilities of the interns, that did not mean they expected any less of the interns. "They held me to the same standard, but they also made sure that I wasn't jumping into anything that I couldn't handle, or that they were setting me up for failure," Paul said. Gauging the capabilities of interns with physical disabilities helps both the intern and employer know what the intern needs in order to be efficient in the position.

**Requesting accommodations.** During the time in which interns and employers are gauging the capabilities of interns, it may become apparent that interns need accommodations in order to successfully complete what is asked of them. Brandon typically uses the backside of his hand on a trackpad when using a computer. However, the keyboard at his internship would not recognize his hand, and he was unable to use the computer. Fortunately, Brandon's supervisor ordered a new keyboard as soon as it was brought to his attention. When Theresa started her internship, her computer had been set up with a screen reader before she even walked in the building, and she was immediately able to get to work. She said:

I thought that going into the internship I was going to have to jump through 50 different hoops and educate all these people and figure out my own accommodations, but that wasn't the case. People were really willing to work with me, to get to know me, and help me in any way that they possibly could.

An important part of the internship program was the interactions interns had with their coworkers. The interns described their coworkers as extremely helpful and friendly. However, it was the treatment of the interns as just another employee that held the most impact. Brandon stated, "They treated me like Brandon the person, not Brandon the person that's in a wheelchair." This made Brandon feel more accepted at his internship, and allowed him to focus more on the work he was doing instead of worrying about the perceptions of others.

### **Professional Skills and Competencies Learned**

The application process the students went through may have been just as valuable as the internship itself. By asking students to develop and provide a resume, and to go through an interview process, students were able to experience what a true job search may look like one day. Theresa felt the program was helpful in allowing her to practice interview skills, as well as to develop other skills necessary to prepare for finding a job post-graduation. Logan expressed that he would feel less comfortable job searching without this experience. The resume building, application and interview process, and the internship itself made him feel more prepared for the job search post-graduation.

**Transferrable skills.** Simply being able to say one had an internship is not enough to secure employment. Interns need to be able to demonstrate skills and competencies they learned throughout their internship experience. Logan started his internship

having no experience in grant writing. By the end of his internship, he wrote two grant applications, one of which was funded. Through his internship in the grants department, Logan reported he learned better communication skills and the role those skills play in a professional environment. He also had the opportunity to learn how to collaborate with different personalities in the workplace, especially when under stress. Most notably, Logan learned the importance of “staying within your strengths, avoiding your weaknesses, and capitalizing on your opportunities.” During his internship, Logan was able to identify his strengths and weaknesses and determine how they played into his position in the grants department.

For Laura, the most beneficial aspect of her internship was getting out of the classroom and gaining hands-on experience. “It’s one thing to believe you can when you read about it in theory, but it’s another to actually to attempt to do something hands-on.” Her internship at the clinic allowed her to work with patients with varying mental health issues, and see firsthand the characteristics of those mental health issues, instead of solely learning about them through reading. In the clinical setting, there was never a typical work day and Laura learned to expect the unexpected. She reported she became more flexible and learned how to adapt to stressful situations. Brandon also valued the hands-on experience of working with VM Ware and setting up servers in the IT department. Theresa learned how to deal with difficult people. She recognized the importance of this skill as an educator, knowing she might someday have to deal with angry or upset parents. Paul left his internship feeling he had further developed his sense of professionalism, especially when working with those who are not his age.

**Networking.** The value of networking is not easily lost on those participating in an internship. The interns reported the networking aspect of the internship program as being extremely valuable. During the program, Logan had the opportunity to work with the department director on a presentation given to the Board of Health and Hospital Corporation. Laura also recognized the role networking plays in securing employment. “I had some good networking opportunities. Whether or not I choose to go into mental health, I can put these people down as my references,” Laura said. Brandon hoped his internship in the IT department would lead to a job offer. Through their internships, students were given numerous opportunities for professional development. These opportunities also allowed them to work and connect with other professionals in their respective fields.

Professional skills and competencies are only useful when accompanied by personable, competent

individuals. Additionally, students with physical disabilities will face more barriers to being successful as they must work harder than their able-bodied peers. Stigmas surrounding the abilities of those with physical disabilities often prevent them from being hired. Students with physical disabilities often fear they will face discrimination throughout the job search. However, interns reported being more confident about their job prospects post-graduation after completing their internships.

### **Developing Self-worth and Gaining Independence**

Interns were given work that was meaningful to both themselves and their respective employers. Logan felt “the work [he] did and the work in the program that the interns get to do really makes an impact.” Feeling valued by their employers increased the interns’ self-worth in the workplace. Theresa expressed having anxiety about finding a job post-graduation, but her internship helped her to feel more optimistic about her job prospects after graduating. “I felt more confident in my ability that when I get a job someday, that people are not all close-minded and they’re going to be willing to accommodate me,” Theresa said. However, she added that while she is confident in herself, she is not completely confident that others will not be discriminatory in hiring practices.

A common theme reported by the interns was that of gaining a sense of independence through the internship program. Theresa, who lived in the campus housing, felt she gained confidence in her abilities to get places on her own and to live independently. Paul, who has had experience in large and bustling cities, saw how his roommate, another intern in the program, benefitted from being in the program. “I think having to live in [the city] forced him to be more independent. He worked far away from the apartment and had to use public transportation a lot,” said Paul. Paul also felt some students with physical disabilities are “overly coddled” when they are younger by parents who do not want to see them struggle. In an attempt to protect their children, Paul said he believed parents actually do a disservice to their children by preventing them from experiencing the real world. Through participating in the internship program and living in the provided housing, interns were forced to be more independent and self-reliant.

### **Post-Internship Considerations**

After completing the internship program, interns reflected on their experiences in the program and discussed what impact their internships had on their career aspirations. For Theresa, Brandon, and Paul, their internships solidified their interests in their in-



tended career paths. During his interview, Logan shared he had applied to graduate school. Because of his experience in the internship program, Logan was considering developing a non-profit, similar to the collaboration between the university and the hospital, for his graduate school project. Laura, however, realized that mental health counseling was not the path for her, and was considering pursuing a career in student affairs, specifically in disability services. However, Laura said she still felt the internship was beneficial because it gave her an opportunity to explore a career path before conducting a job search for a position she would ultimately realize wasn't right for her.

## Discussion

Because students with physical disabilities face alarmingly low employment rates post-graduation (Dutta et al., 2008), internship programs specifically designed for students with physical disabilities may help combat these low employment rates. Students participating in an internship program develop transferable skills that may help them in successfully securing employment post-graduation. From resume building and practicing interview skills, to disclosing their disabilities during the interview process, students developed skills that will significantly help their job searches upon graduation. Going through the application and interview process for the internship made students feel more at ease about applying and interviewing for jobs in the future. They are less likely to avoid applying for a job because they are now confident in their ability to craft a resume, to interview, and to disclose a disability.

Students gained experience in identifying and addressing barriers which stand between them and a successful transition to post-graduation employment. Not only did the students develop these professional competencies, but they developed many vital personal competencies. Students learned how to advocate for themselves, and to ask for what they needed in order to be successful. Some also had the opportunity to experience living on their own in busy cities. Additionally, some students experienced how external circumstances can affect their experience in the workplace. For example, one student who had a negative experience with an attendant care company realized he would have to do extensive research in the future in order to find a reputable company.

Students who participated in the internship program developed a more positive outlook on their career prospects post-graduation. The hands-on experience of the internships helped students to feel confident in their abilities to do the work for which they were hired. They were able to assess how their

disabilities would affect them in the workplace, and will apply that knowledge to their future job searches. Moreover, students felt more comfortable about how they would be perceived in the workplace. While many stigmas regarding a person with a disability's ability to work exist, students felt their internships helped to permeate those stigmas. The internships helped to alleviate their own fears of not being accepted by able-bodied coworkers, but also helped to show those able-bodied coworkers just how capable they were of succeeding in the workplace.

Students who reported the importance of knowing how to address barriers to employment reflect the importance for career services professionals to also understand these barriers (Roessler et al., 2009). Professionals working with students in the internship program supported students by taking the time to help them navigate the process of disclosing a disability and asking for reasonable accommodations. Experiencing the process of disclosing a disability and asking for accommodations during their internships is only going to benefit students as they graduate and begin the search for employment. Just participating in the internship program itself will help increase the chances of students finding meaningful employment after graduation (Fei-Chuan et al., 2009; Blau et al., 2015; Oswald et al., 2015). The hands-on internships not only help the interns to understand how their disability will affect them in the workplace, but help show potential employers just how capable they are at doing the work. The skills the students developed throughout their internships will be vital to a successful transition to the working world after graduation.

## Implications

Since students with disabilities are entering higher education more than ever before (Eckes & Ochoa, 2005), it is important that these students have the tools and resources to continue their success even after they graduate. Students with disabilities, particularly physical disabilities, will face additional barriers when it comes to seeking and obtaining employment post-graduation. Therefore, it is vital that students, educators, and employers actively address and prepare students for a successful transition to the working world.

Colleges and universities looking to implement similar programs on their campuses should start by facilitating a collaborative effort between disability and career services offices. Each office has tools and resources that the other does not, and only collaboration between the two offices will provide students with physical disabilities the most options for success. Career services should consider enabling a disability specialist dedicated to serving those with



disabilities. This person should be familiar with ADA and how it applies to the workplace, as well as have a focus on addressing the additional barriers to employment students with disabilities face.

Employers interested in partnering with local colleges and universities to implement similar internship programs should consider several things. The work given to interns should be meaningful to both the intern and the employer. Students will not develop critical professional and personal competencies if they are asked to do menial tasks that do not fully immerse them in the workplace. Employers should not assume an intern will need certain accommodations, but should be open and receptive to providing accommodations if requested. Further, because the program is intended for those with disabilities, program coordinators should consider the needs of chair-users in the program. As evidenced by one student in the study, the importance of reputable and reliable attendant care workers was vital to the student's overall internship experience. Internships in high traffic areas in busy cities can prove difficult to be navigated by attendant care workers hired by students in the internship program. Program directors could work with the student in finding suitable attendant care services that are familiar with the area. Additionally, the program could consider collaborating with local colleges and universities with nursing or other health-related programs in finding students who are looking to gain experience with attendant care. Local students might be more familiar with the area, and might be more dedicated to the work if they are receiving some sort of credit or practical experience.

Students with physical disabilities should be strongly encouraged to apply for internships during college. Having the hands-on experience provided by the internship, as well as the support from educators and other professionals along the way, will only help to make students more confident in their ability to get hired. By having students produce resumes and practice interviewing, they can apply these skills to future job searches. Students should utilize resources from both disability and career services centers in preparing for internships and other career-related endeavors. Incorporating opportunities for mentorship in the program may also prove beneficial in attracting potential interns. Students with physical disabilities who may have concerns about their ability in the workplace might benefit from being connected with past interns. Reassurance from past interns as to the benefit of and positive experience in the program might help to encourage students who would otherwise shy away from the program to apply.

## Summary

Internship programs may help to expand job prospects for those with physical disabilities. While it is providing students with valuable hands-on experience and professional development, it is also helping businesses and organizations understand what employment looks like for those with physical disabilities. By participating in an internship program, students with physical disabilities are developing personal and professional competencies which are critical to a successful transition from college to employment. Institutions who implement similar internship programs are demonstrating their commitment to producing well-rounded, educated, and productive members of society. They are making intentional efforts to address the barriers to employment which those with physical disabilities face and are ensuring students have equal opportunities to put their hard-earned degrees to use after graduation.

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# Comparing Employment Outcomes of Young Adults with Autism: Does Postsecondary Educational Experience Matter?

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## Abstract

Previous research indicates that postsecondary educational experience (PSE) predicts successful employment outcomes for transition-aged youth with disabilities. Using data on supported employment services from the Rehabilitative Services Administration, this study compared employment rates and outcomes for young adults with Autism Spectrum Disorder (ASD) with different levels of education who received supported employment services. The study also analyzed the cost-effectiveness and cost-efficiency of vocational rehabilitation (VR) services provided to these youth. Findings indicate that young adults with PSE experienced increased rates of employment, earned greater weekly wages, and worked more weekly hours than individuals with ASD with less education. VR services provided to youth with ASD in the PSE group were more cost-effective and were ultimately cost-efficient, provided that individuals maintained employment for 16 months.

*Keywords: autism, transition, postsecondary education, vocational rehabilitation*

Transition planning was first included in the Individuals with Disabilities Education Act (IDEA) in 1997 to address abysmal school outcomes for youth with disabilities. The most recent iteration of IDEA (2004) continues the requirement that Individualized Education Program (IEP) teams work with youth with disabilities to prepare them for the transition from school to adult life through transition planning and services that consider students' strengths, needs, preferences, and interests. Adult service agencies who would likely be responsible for the provision of transition services, including state vocational rehabilitation (VR) agency representatives, are invited to participate in the transition process. Despite the decades-long focus on improving post-school outcomes through the transition planning process, progress has been both limited and uneven. Youth with IEPs are still less likely than students without IEPs to participate in postsecondary planning and work experiences while in high school (Lipscomb et al., 2017). Overall outcomes for youth with disabilities continue to trail those of their peers without disabilities, and outcomes for young adults with Autism Spectrum Disorder (ASD) remain poor compared to youth with other disability categories (Newman et al., 2011).

## Employment Outcomes for Youth with ASD

For many youth with ASD, there is a divergence between the goals of IDEA-mandated transition planning and practices and actual employment experiences in the years following high school. Individuals with ASD experience high rates of unemployment or under-employment (Hendricks & Wehman, 2009; Roux, Shattuck, Rast, Rava, & Anderson, 2015; Taylor & Seltzer, 2011). Only 26% of young adults with significant disabilities, including ASD, are working two years post-high school; nearly half (43%) of those employed work in segregated settings, such as sheltered workshops (Carter, Austin, & Trainor, 2012). When compared with youth with other disabilities, including Learning Disabilities, Intellectual Disabilities (ID), and Speech Language Impairment, young adults with ASD are least likely to be employed or to have prior work experiences in the first six years following high school (Shattuck et al., 2012). Access to VR services does not necessarily lead to successful employment outcomes. Participation in VR services varies widely across states for young adults with ASD, and measures of successful employment outcomes for youth with ASD receiving VR services range from 36% to 58% (Burgess & Cimera, 2014;

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Migliore, Butterworth, & Zalewska, 2014). These findings highlight difficulties young adults with ASD encounter in finding and maintaining employment, even for individuals who participate in VR services during transition.

### **Factors that Influence Employment Outcomes**

The field has begun to identify factors that may differentially influence employment outcomes for young adults with ASD. Work experience is associated with improved employment outcomes for young adults with ASD (Carter et al., 2012; Simonsen & Neubert, 2012; Sung, Sanchez, Kuo, Wang, & Leahy, 2015) and youth with disabilities in general (Test et al., 2009; Wehman et al., 2015). Young adults with ASD who receive VR job placement services, which focus on assisting individuals with disabilities to find specific job positions, are more likely to be successfully employed (Migliore, Timmons, Butterworth, & Lugas, 2012; Sung et al., 2015). Recent studies have also indicated that postsecondary educational experience (PSE) predicts successful employment for young adults with ASD (Migliore et al., 2012; Sung et al., 2015), individuals with ID (Grigal, Hart, & Migliore, 2011) and youth with disabilities (Wehman et al., 2015). When compared to peers without PSE, transition-aged youth with ID who participate in PSE are employed in greater numbers in competitive, integrated settings, work more hours, and earn more in weekly wages (Cimera, Thoma, Whittenburg, & Ruhl, 2018). Although these factors suggest potential pathways for improving employment outcomes for young adults with ASD, closer examinations of these approaches are needed. There has not been research that directly compares specific employment outcomes of young adults with ASD who have attained different educational levels, including PSE.

### **Postsecondary Educational Experiences**

In our current knowledge-based economy, exploring the influence of PSE on work outcomes of young adults with ASD becomes increasingly important. Recent data indicate that higher levels of education continue to be associated with increased earnings, decreased unemployment, and healthier lifestyles (Ma, Pender, & Welch, 2016). At the federal level, arguments about the impact of PSE on employment outcomes for youth with and without disabilities have been used to justify increases in funding for PSE programs that specifically target youth with ID and other developmental disabilities (DD), including ASD. The Higher Education Opportunity Act of 2008 supports the inclusion of students with ID, DD, and ASD in higher education settings through the establish-

ment of a national center for sharing best practices, grants for model programs, and expanded access to some student financial aid programs (Think College, 2017b). In particular, the Transition and Postsecondary Programs for Students with Intellectual Disabilities (TPSID) model programs offer eligible students opportunities for meaningful participation in college academic and social life, while also preparing them for employment (Think College, 2017a). Emerging research describing employment outcomes for PSE program participants is positive, with preliminary results indicating high employment rates across program types (Moore & Schelling, 2015) and time (Ross, Marcell, Williams, & Carson, 2013). Traditional avenues for young adults with ASD to participate in PSE also exist through community college, vocational and career training, and four-year universities. However, PSE financial support for this population is limited. In 2008, only 10% of youth with ASD using VR services received VR financial assistance through college services to offset costs of PSE participation (Migliore, et al., 2012).

### **VR Services and Individuals with ASD**

State VR agencies assist individuals with disabilities in finding and maintaining employment and are responsible for taxpayer monies spent during that process. It is important to identify services that are associated with successful employment, better wages, and more work hours for young adults with ASD, but also to determine which approaches yield returns on societal investments in VR through increased tax base contributions and decreased reliance on government benefits (Burgess & Cimera, 2014). When compared to the larger population of young adults with disabilities receiving VR services, transition-aged youth with ASD are more likely to achieve employment than the larger group; however, costs of providing VR services to youth with ASD are significantly higher. Previous research has demonstrated that having sheltered workshop experience may hinder the earning power of adults with ASD, while costing VR agencies more to provide services (Cimera, Wehman, West, & Burgess, 2012). Across the board, individuals with ASD who receive VR services continue to experience low rates of successful employment, low wages, and limited number of hours worked per week (Burgess & Cimera, 2014, Cimera & Burgess, 2011; Cimera et al., 2012). Yet these studies also describe possibilities for improving employment outcomes for individuals with ASD and maintaining cost-effective services for taxpayers. Transition planning and services for youth with ASD can result in competitive employment and avoiding segregated employment training settings

can help more adults with ASD achieve higher wages while costing VR agencies less to provide services (Burgess & Cimera, 2014; Cimera et al., 2012).

### Current Study

Access to PSE appears to benefit young adults with disabilities. It is still unknown, however, how PSE may affect specific employment outcomes for transition-aged youth with ASD and if the provision of VR services to this group is cost-effective and cost-efficient from a public policy perspective. This paper extends previous research within the field to transition-aged youth with ASD by comparing employment rates and outcomes across different educational attainment levels and analyzing the cost-effectiveness and cost-efficiency of VR services provided. This study focused on the following research questions: Are there differences in employment rates for transition-aged youth with ASD with different levels of educational attainment (no high school diploma, special education certificate, high school diploma, and PSE)? How do employment outcomes (wages earned, hours worked, hourly pay rate, type of position obtained) compare for young adults with ASD with different levels of education? Is PSE cost-effective for transition-aged youth with ASD when total cost of services, cost-per-hour worked, and cost-per-dollar earned are considered? From the taxpayers' perspective, is it cost-efficient for young adults with ASD to participate in PSE?

### Method

In this study, the researchers used descriptive statistics to compare specific employment outcomes for transition-aged supported employees with ASD who have different educational levels. Descriptive statistics were calculated to make comparisons across educational level groups on participant demographic characteristics and multiple vocational outcomes, including the reason for VR case closure, occupation type, weekly wages earned, weekly hours worked, and hourly pay rate. The researchers also performed cost-effectiveness and cost-efficiency analyses of the VR services provided to this population. The method used in this paper replicated that used by Cimera et al. (2018). While the previous study focused on employment outcome comparisons for transition-aged youth with ID, this study considered how different educational attainment levels influence work outcomes for young adults with ASD.

### Data Source

Data used in this study were obtained from the Rehabilitative Services Administration's Case Service Report (RSA-911) for 2015, a federally funded database designed to track VR services and outcomes across the United States annually. State agency VR counselors enter information into the database, including: participants' demographic data, provision of specific VR services, and outcomes of VR cases. Data entries into the database are certified before submission and checked for potential errors after submission (U.S. Department of Education, 2016).

### Participants

Over 500,000 individuals with disabilities accessed VR services in the United States in 2015 (U.S. Department of Education, n.d.). Data on transition-aged youth with ASD who received VR services ( $n = 4,249$ ) were analyzed in this study. To be included in analysis, participants must have: 1. ASD listed as primary disability, 2. No recorded secondary disabilities, 3. Individualized Plans for Employment (IPE) with supported employment as an employment goal, and 4. Been between the ages of 17-26 years old when their VR cases were closed. Individual records were excluded if secondary disabilities were present and/or participants were older than 26, since these two factors may also differentially affect employment outcomes (Cimera et al., 2018).

Participants were divided into four groups, based on highest level of education attained at time of VR case closure. The four groups were: no high school diploma ( $n = 426$ ; 10.03% of total sample), high school special education certificate of completion ( $n = 926$ ; 21.79% of total sample), high school diploma ( $n = 1,868$ ; 43.96% of total sample), and some postsecondary educational experience ( $n = 1,029$ ; 24.22% of total sample). Demographic information, including gender, ethnicity, severity of disability, and personal living arrangement, was also collected for each of the groups. Please see Table 1 for descriptions.

### Variables

**Level of educational attainment.** RSA-911 provides nine data coding options for describing educational levels of VR participants (U.S. Department of Education, 2016). The researchers collapsed these levels into four variable categories for analysis: no high school diploma, high school special education certificate, high school diploma, and some postsecondary educational experience. "No high school diploma" was defined as having elementary and/or secondary school experience that did not result in a standard high school diploma, "high school special



education certificate” as finishing high school with a special education certificate of completion or attendance based on IEP requirements, “high school diploma” as meeting requirements for a state-issued diploma or its alternative, and “some postsecondary educational experience” as participating in postsecondary educational training after high school - including degree, non-degree, and certificate programs.

**Severity of disability.** VR counselors rated severity of participants’ disabilities and entered that information into the RSA-911 database. There were three possible values – not significant, significant, and most significant. Disabilities were categorized as “significant” if they limited functioning in areas that may affect work outcomes (including communication, independent living, social, and work skills) and were likely to require multiple and ongoing VR services. The category of “most significant” disabilities added to the criteria for “significant” disabilities by describing participants who demonstrated functional limitations in more than one area. Finally, participants who did not meet criteria listed above were classified as having disabilities that were “not significant” (U.S. Department of Education, 2016).

**Reason for VR case closure.** Data were collected on reasons for VR case closure. Multiple reasons were provided for why participants’ cases may not have been closed successfully, including: VR counselor was unable to locate or contact the participant, disability was deemed “too significant” to benefit from VR services, participant was no longer interested in VR services, participant transferred to another agency, transportation to and from work was not found, necessary extended VR services were unavailable, the participant was incarcerated, or the participant was placed in a sheltered or non-integrated extended employment program instead. Participants’ cases were categorized as “employed” when they achieved competitive, integrated or supported employment (U.S. Department of Education, 2016).

**Occupation type.** For individuals whose cases were closed because of successful employment outcomes, VR counselors entered information into RSA-911 on the type of work they obtained. Occupation type was categorized using the Standard Occupational Classification (SOC) code that best matched the work description (U.S. Department of Education, 2016; U.S. Department of Labor, 2016). This study utilized SOC’s 23 occupational family codes to make work type comparisons across participant groups (Cimera et al., 2018).

**Weekly wages, hours worked, and hourly pay rate.** Weekly wages were defined as the average money earned from employment, before deductions,

per week. Hours worked referred to the average number of hours spent at work on a weekly basis. Hourly pay rate was reported as the amount of money earned per hour in employment.

**Monthly government subsidies.** VR counselors entered into RSA-911 the amount of money participants received in government subsidies per month at the point when their cases were closed. Social Security disability payments, Veterans’ Disability benefits, Workers’ Compensation payments, monies received through Temporary Aid for Needy Families (TANF), and any other cash assistance from local or state government were included in these calculations (U.S. Department of Education, 2016). The researchers added together subsidy monies received from various sources to obtain monthly totals for group comparison purposes (Cimera et al., 2018).

**Cost of VR services.** The total cost of VR services provided prior to case closure was reported in RSA-911. These figures reflected the amount of money spent to purchase VR services from outside vendors (such as assessment, job search assistance, supported employment), and did not include direct services provided by state VR counselors (U.S. Department of Education, 2016).

**Cost-effectiveness.** Cost-effectiveness is a comparison measure that analyzes costs of different approaches that achieve same outcomes (Boardman, Greenberg, Vining, & Weimer, 2006). The most cost-effective approach is the one that costs the least but still reaches the desired outcome. This analysis compared VR service costs for participants in each education level group to average costs for the total sample and for participants who became employed (Cimera et al., 2018). Cost-effectiveness was also calculated in terms of cost-per-hour worked and cost-per-dollar earned for individuals who exited VR with successful employment outcomes.

**Cost-efficiency.** Cost-efficiency is a method for comparing economic costs and benefits of a given situation (Boardman et al., 2016). The United States VR system is funded by federal and state governments. Local VR counselors and authorized providers often work together to provide individuals with disabilities a range of services needed to find and maintain employment (e.g., job development, job site training, transportation training). Because these services are publicly funded, taxpayers, through their tax contributions, ultimately pay for the provision of VR services. Therefore, the cost-efficiency analysis focused on costs and benefits to taxpayers to determine if PSE participation produced cost-efficient results. PSE participation could potentially require more expensive VR services, because of financial support for



PSE, cases staying open longer, or requirements for additional, varied VR supports. PSE participation could possibly result in benefits to taxpayers too, if young adults with ASD who have PSE experience earn more in wages, thus potentially paying more in taxes while receiving less in government subsidies (Cimera et al., 2018).

Results from this study yielded average annual wages that would likely fall beneath the threshold for state and federal tax payment requirements. Therefore, the researchers used differences across groups in government subsidies received to determine the cost-efficiency of VR services from the taxpayers' perspective. Cost-efficiency was calculated using the following formula: difference in average cost of VR services between each contiguous level of education group divided by the difference in average monthly government subsidies received. The resulting quotient indicates the number of months it would take to "pay off" higher costing VR services through decreased government subsidies. If there are no reductions in government subsidies between contiguous educational level groups (e.g. between individuals without a high school diploma and individuals with a special education certificate), then there is not cost-efficiency between those groups, since savings to the taxpayer do not exist (Cimera et al., 2018).

For example, compare the cost-efficiency of hypothetical VR services provided to individuals with PSE and individuals with high school diplomas. Suppose that VR services cost, on average, \$1200 for the PSE group and \$1000 for the high school diploma group. Also, the PSE group receives average monthly government subsidies of \$400 at VR case closure, compared to \$600 for the high school diploma group. In other words, individuals with PSE receive \$200 less through reduced monthly subsidies. In this hypothetical example, it would take one month to "pay off" the additional cost of more expensive VR services for the PSE group using the cost-efficiency formula described above, since  $(1200 - 1000)/200 = 1$  (Cimera et al., 2018).

## Results

### **Question 1: Are there differences in employment rates for transition-aged youth with ASD with different levels of educational attainment?**

Analysis of the 2015 RSA-911 data indicated that as levels of education increased, so did employment rates. 41.3% of young adults with ASD without a high school diploma obtained employment. The rate rose to 58.9% for students who left high school with a special education certificate of completion and to

61.7% for individuals with ASD who earned a high school diploma. The highest employment rate, at 68.9%, was achieved by young adults with ASD with PSE. Please see Table 2 for additional information.

### **Question 2: How do specific employment outcomes compare for young adults with ASD who have different education levels?**

Weekly wages increased with each successive education level. Young adults with ASD without high school diplomas earned average weekly wages of \$79.61. Individuals who left high school with special education certificates earned \$108.35 per week, compared to \$129.08 per week for individuals who exited high school with diplomas. Young adults with ASD who were in the PSE group earned the most, with average weekly wages of \$207.80.

Mean weekly hours worked rose with education level, although none of the groups came close to full-time work. Individuals with ASD who did not finish high school worked the least, at 8.8 hours weekly. Average weekly work hours increased to 12.4 for young adults with ASD in the special education certificate of completion group. Individuals with high school diplomas worked more, averaging 14.3 hours per week. Young adults with ASD who had PSE worked more hours than any of the other groups, with 19.1 hours spent on the job weekly.

Hourly pay rate was similar for participants in three out of four education level groups. There were no differences in pay rate between young adults with ASD who did not complete high school and who earned diplomas, with both groups earning \$8.88 per hour, on average. Participants who finished high school with special education certificates of completion fared slightly worse, as their mean hourly pay was \$8.65. Young adults with ASD in the PSE group performed best on this employment outcome marker, earning an average of \$10.40 per hour.

VR counselors reported information on types of positions obtained when cases were successfully closed. Individuals with PSE worked in 22 different types of occupations, compared to 20 for the high school diploma group and 21 for the special education certificate of completion group. VR participants with ASD who did not complete high school demonstrated substantively less variety in types of work obtained; they were represented in 14 occupation families. Almost a quarter of young adults with ASD across groups were employed doing office and administrative support work. 18-20% of participants with and without high school credentialing worked in food preparation and service; that number fell to 11.6% for young adults with PSE. Cleaning and maintenance

jobs were the third highest ranked occupation type for individuals who did not complete high school or who graduated with a special education certificate or diploma; sales were ranked third highest for young adults in the PSE group. Information on employment outcomes is presented in Table 2.

**Question 3: Is PSE cost-effective for young adults with ASD, when total cost of services, cost-per-hour worked, and cost-per-dollar earned are considered?**

Total cost of VR services was more expensive for individuals with PSE. Services for all transition-aged youth with ASD, regardless of whether or not they achieved employment at case closure, cost an average of \$5,794 for participants who did not complete high school. That number rose to \$5,815 for individuals with ASD who completed high school with a special education certificate of completion and dipped to \$5,673 for high school graduates. VR services for participants in the PSE group cost the most, averaging \$7,225. In general, services cost more for participants who gained competitive employment, with differences in expenditures across education levels. Cost of service was greater for employed participants who did not complete high school (\$7,413) than for participants with special education certificates of completion (\$7,073). VR services cost the least for employed high school graduates, averaging \$6,582, and the most for employed participants from the PSE group, at \$8,065.

Although services for young adults with ASD in the PSE group were most expensive, they were also most cost effective, when cost-per-hour worked and cost-per-dollar earned were considered. Individuals with PSE received VR services that cost \$422.25 per hour worked, compared to \$842.39 for participants without high school diplomas, \$570.40 for young adults with special education certificates of completion, and \$460.30 for participants with diplomas. A similar pattern of improved cost efficiency with more education was also apparent when cost-per-dollar earned was calculated. VR services cost \$93.12 per dollar earned for individuals who did not complete high school. The rate dropped to \$65.28 for individuals with special education certificates of completion, \$50.99 for participants with high school diplomas, and \$38.81 for young adults with PSE. Please see Table 3 for specifics on cost-effectiveness for each group.

**Question 4: Is it cost-efficient for young adults with ASD to participate in PSE?**

Results from cost-efficiency analyses indicated that it was cost-efficient for young adults with

ASD to participate in PSE. Specifically, VR services became cost-efficient once participants in the PSE group had been employed for 16 months. This number was obtained by dividing the difference in VR service costs for the PSE and high school diploma groups by the difference in government subsidies received by the two groups. At 16 months, the higher cost of VR services incurred for individuals with PSE was “zeroed out” by decreased monthly government subsidies received by the PSE group. The researchers also found that VR services for youth with ASD who obtained high school diplomas were automatically more cost-efficient than services for participants who exited high school with special education certificates of completion, because the total average cost of services for the high school diploma group was less. Table 3 also provides information on cost-efficiency of services for participants with different levels of educational attainment.

## Discussion

College has long been considered to be a pathway to improved employment opportunities for young adults without disabilities (O’Neill, 2001). For transition-aged youth with ASD accessing PSE, similar patterns emerge. Specifically, this study found that individuals with ASD who participated in PSE experienced better employment outcomes than young adults with ASD with less education. The most dramatic difference was between participants without high school diploma and participants with PSE, where there was a 27.6% point difference in successful employment outcomes (41.3% for the no high school diploma group compared to 68.9% for the PSE group). Employment outcomes for young adults with ASD who completed high school, with special education certificates or high school diplomas, fell toward the middle of this range, at 58.9 and 61.7%, respectively. These findings align with prior research by Chiang, Cheung, Li, and Tsai (2013), who found that students with ASD who leave high school with diplomas are significantly more likely to be employed post-high school than students with ASD who do not graduate with standard diplomas. However, the comparison of youth with ASD with different levels of educational attainment in this study indicates that participation in PSE may yield even greater employment outcomes.

It could be argued that observed differences in employment outcomes reflect differences in participant characteristics, e.g., that individuals with less significant disabilities were more likely to participate in PSE. Data from this study do not indicate that this is necessarily so. Young adults with ASD whose dis-

abilities were classified as “most significant” in RSA, defined as demonstrating functional limitations in more than one life area and requiring ongoing support to address, comprised 78.4% of the no high school diploma group, compared to 58% of the PSE group. The higher proportion of individuals with “most significant” disabilities who did not complete high school could suggest that disability severity negatively affected educational attainment and ultimately, employability. However, it is important to note that over half of the participants in the PSE group received this same designation, yet employment outcomes were markedly different. In addition, 71.2% of young adults with ASD who graduated with high school diplomas were described as having “most significant” disabilities, a proportion closely approaching that of the no high school diploma group. Yet the rate of successful employment outcomes for this group was much closer to that of the PSE group, at 61.7%, compared to 41.3% for participants without high school diplomas. These findings align with other research examining relationships between educational attainment and successful employment outcomes for VR participants with ASD, which have found PSE to be a significant predictor of VR case closures with competitive employment outcomes (Alverson & Yamamoto, 2018), correlated with higher earnings and more weekly work hours (Migliore et al., 2012), and an employment predictor for both males and females with ASD (Sung et al., 2015). Consistent with other studies which have described strong employment outcomes for young adults with Intellectual and Developmental Disabilities participating in PSE programs (Moore & Schelling, 2015; Ross et al., 2013), results from this study suggest that improved access to higher levels of educational opportunity for young adults with ASD with significant disabilities could potentially lead to higher rates of employment.

This study also found improvements in other specific employment outcomes for young adults with ASD in the PSE group. Weekly wages and weekly hours worked increased with educational attainment level, with averages for both indicators more than doubling for participants with PSE compared to participants who did not complete high school. Hourly pay was also highest for the PSE group, at \$10.40 per hour. Hourly pay rates did not vary much for participants with less education (ranging from \$8.65-\$8.88 per hour), but other outcome differences were noted for individuals with dissimilar high school experiences. Young adults with ASD who exited high school with diplomas worked more hours weekly (14.3 compared to 12.4) and earned more in weekly wages (\$129.08 compared to \$108.35) than their

peers who left high school with special education certificates of completion.

This last finding aligns with previous research indicating that exiting high school with alternative credentialing versus a high school diploma may have negative consequences for individuals with disabilities (Hartwig & Sitlington, 2008; O'Neill, 2001). Specifically, students with disabilities who graduate with special education certificates of completion may have limited access to pathways to higher-earning careers through college or the military (O'Neill, 2001). Perspective employers have also demonstrated greater reluctance to hire individuals with special education certificates of completion and are more likely to assign special education certificate of completion earners to low-level positions (Hartwig & Sitlington, 2008). These findings, documenting lower wages and less work hours for young adults with ASD who earned certificates of completion, indicate that exiting high school without a standard diploma may negatively affect youth with ASD too.

Young adults with ASD who had PSE were also represented in greater proportions than individuals with less educational attainment in higher-paying, professionally-oriented occupational fields, such as business and finance (2.3%) and computer and mathematics (4.7%). Moreover, youth with ASD in the PSE group were less likely to be employed in areas traditionally open to individuals with disabilities, such as cleaning and maintenance, personal care and service, production, and food preparation and services. It is important to note, however, that improved employment outcomes for young adults with ASD who had PSE were insufficient to lift them above the poverty line. The 2016 federal poverty level for single-person households in the United States and District of Columbia was \$11,880 (Healthcare.gov, 2017). VR participants with ASD in the PSE group earned, on average, \$10,805.60 annually; both hourly wages and weekly hours worked would need to increase in order for young adults with ASD to move above the poverty level.

This study also explored how PSE participation could potentially benefit taxpayers by analyzing the cost-effectiveness and cost-efficiency of VR services. Although VR services were more expensive for youth with ASD in the PSE group, they were also more cost-effective. Specifically, when total VR service costs were divided by hours worked and wages earned, cost-per-hour worked and cost-per-dollar earned ratios were less for employed individuals who had PSE than for individuals with less education. VR services were also cost-efficient for young adults with ASD in the PSE group, as VR service expendi-



tures would “pay for themselves” over time through decreased monthly government subsidies, provided participants maintained employment for 16 months. Given this finding, future longitudinal research is needed that both investigates and describes duration of employment for young adults with ASD who participate in PSE. At present, VR services for young adults with ASD who have PSE appear to be a worthwhile investment from the taxpayers’ perspective, given the increased cost-effectiveness and ultimate cost-efficiency of this approach.

### Implications for Practice

While results from this study describe the promise of PSE experience in improving employment outcomes for young adults with ASD, they also highlight areas for growth. Findings from this study indicated that young adults with ASD who participated in PSE were represented in larger numbers in professionally-oriented fields (e.g., business and finance, computer and mathematics), but overall representation was still very low. Developing opportunities for young adults with ASD, while participating in PSE, to explore these and other professionally-oriented career fields through work experiences (e.g., internships, summer employment, part-time work, service learning) and work-based learning (e.g., job shadowing, job rotations, career mentoring) may help students with ASD develop specific work skills and business connections needed to obtain positions in a wider range of fields (National Collaborative on Workforce and Disability for Youth, 2016). Due to deficits in social communication skills and sensory issues often experienced by individuals with ASD, careful planning to identify and assess potential work experience and work-based learning sites is key. Creating strong matches based on students’ strengths and interests and business partner needs, while also considering and planning for environmental demands (e.g., sensory, social, communication, and organizational), will help create successful experiences for students and businesses (Kurtz & Jordan, 2008).

Additionally, this study found that earnings were higher for youth with ASD in the PSE group. However, these higher earnings still fell below the poverty threshold. Developing work experiences in professionally-oriented fields while participating in PSE may also support individuals with ASD in obtaining higher-paying positions postschool. For individuals receiving Social Security disability benefits, concerns about loss of funding and/or health insurance, combined with limited information about the effects of work on benefits, may result in decisions to work less hours or in lower-paying positions (O’Brien, Revell,

& West, 2003). PSE professionals may consider collaborating with VR and Social Security colleagues to offer benefits planning workshops to students on Social Security work incentive programs. A clearer understanding of how employment affects benefits, and the programs available to encourage workforce participation, may support young adults with ASD in making informed choices around employment.

Finally, this study demonstrated both the cost-effectiveness and cost-efficiency of VR services for young adults with ASD in the PSE group. This finding offers a compelling rationale for VR financial support of youth with ASD attending college. However, recent research suggests that some local VR policies (e.g., maintaining a certain grade point average, taking a specific number of courses per semester) may not align with PSE programming for youth with significant disabilities (Grigal, Migliore, & Hart, 2014). Other research describes persistent concerns around program funding, with programs relying more heavily on tuition over time as grant funding dissipates (Plotner & Marshall, 2015). Cost-effectiveness and cost-efficiency data from this study may provide disability service providers with valuable information in advocating for expanded VR participation in funding college services for youth with ASD.

### Limitations

Several limitations should be considered in light of the findings reported here. A wide range of PSE options are available to young adults with ASD, from vocational and career training to traditional four-year university experiences. Even across TPSID programs, myriad differences related to specific programming components and emphases exist (Thoma, 2013). This study did not investigate how participation in unique types of PSE may differentially affect employment outcomes for young adults with ASD. Comparing employment outcomes across different PSE models would be a rich area for future study. Also, as discussed earlier, it is somewhat unclear if potential differences in significance of disability between groups could have affected employment outcomes. To mitigate this possibility, the researchers excluded data from VR participants with reported secondary disability categories, such as ID, from the analysis. Also, more than half (58%) of the PSE group were rated as having “most significant” disabilities by their VR counselors, and 99% of participants across all groups had disabilities described as “significant” or “most significant” in the RSA database.



## Conclusion

The results from this study echo findings from earlier research indicating that participation in PSE may lead to successful employment outcomes for young adults with disabilities (Migliore et al., 2012; Sung et al., 2015; Wehman et al., 2015). Like youth with ID, young adults with ASD who participated in PSE were more likely to be employed in competitive, integrated settings, and earn more than their peers with less education. In addition, VR services for young adults with ASD who participated in PSE were both cost-effective and cost-efficient, an important consideration for publicly-funded services. It should be noted, however, that PSE may not be an appropriate or desired pathway to employment for every young adult with ASD. Decisions about PSE, like all other transition choices, should result from thoughtful, collaborative planning between students, families, schools, and adult service providers, and most importantly, should center on students' individual strengths, preferences, and needs (Cimera et al., 2018).

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Table 1

*Demographic Characteristics by Level of Education*

|                                    |                         | <b>No High School Diploma</b> | <b>Special Education</b> | <b>High School Diploma</b> | <b>Postsecondary Education</b> |
|------------------------------------|-------------------------|-------------------------------|--------------------------|----------------------------|--------------------------------|
| Gender                             | N                       | 426 (10%)                     | 926 (21.8%)              | 1868 (44%)                 | 1029 (24.2%)                   |
|                                    | Male                    | 83.8                          | 85.3                     | 85.8                       | 83.6                           |
|                                    | Female                  | 16.2                          | 14.7                     | 14.2                       | 16.4                           |
| Ethnicity                          | White                   | 83.1                          | 78.3                     | 87.3                       | 88.1                           |
|                                    | African American        | 14.8                          | 18.6                     | 10.8                       | 7.8                            |
|                                    | Native American         | 0.7                           | 1.6                      | 1.4                        | 1.3                            |
|                                    | Asian                   | 3.3                           | 4.0                      | 2.5                        | 5.3                            |
|                                    | Pacific Islander        | 0.0                           | 0.5                      | 0.3                        | 0.4                            |
|                                    | Hispanic/Latino/a       | 6.6                           | 9.4                      | 8.0                        | 5.8                            |
| Average Age in Years ( <i>SD</i> ) |                         | 18.6<br>(1.8)                 | 19.2<br>(2.1)            | 19.5<br>(2.2)              | 20.4<br>(2.9)                  |
| Severity of Disability             | Not Significant         | 0.9                           | 0.4                      | 0.9                        | 1.0                            |
|                                    | Significant             | 20.7                          | 31.2                     | 27.9                       | 41.0                           |
|                                    | Most Significant        | 78.4                          | 68.4                     | 71.2                       | 58.0                           |
| Living Arrangement                 | Private Residence       | 97.4                          | 96.7                     | 97.5                       | 98.3                           |
|                                    | Group Home              | 0.9                           | 2.1                      | 1.3                        | 0.4                            |
|                                    | Rehabilitation Facility | 0.2                           |                          | 0.1                        |                                |
|                                    | Halfway House           | 0.2                           |                          | 0.1                        |                                |
|                                    | Homeless/Shelter        |                               | 0.1                      | 0.1                        | 0.1                            |
|                                    | Other                   | 1.2                           | 1.2                      | 1.0                        | 1.2                            |

*Note.* All data are presented in percentages, with the exception of population size and age. Sample size percentages are included in parentheses. *SD* indicates standard deviation. Participants were able to identify multiple ethnicities. Consequently, the sum total of all ethnicities equals more than 100%.



Table 2

*Vocational Outcomes by Level of Education*

|                    |                                     | No High School Diploma | Special Education      | High School Diploma    | Postsecondary Education |
|--------------------|-------------------------------------|------------------------|------------------------|------------------------|-------------------------|
| Reason for Closure | Employed                            | 41.3                   | 58.9                   | 61.7                   | 68.9                    |
|                    | Unable To Locate                    | 17.1                   | 9.3                    | 11.2                   | 7.6                     |
|                    | Disability Too Significant          | 1.9                    | 1.2                    | 0.3                    | 0.1                     |
|                    | No Longer Interested In Service     | 26.5                   | 18.1                   | 17.7                   | 15.6                    |
|                    | Transferred To Another Agency       | 3.1                    | 2.6                    | 1.3                    | 1.2                     |
|                    | Transportation Not Feasible         | 0.5                    | 0.2                    | 0.1                    | 0.2                     |
|                    | Extended Services Not Available     |                        |                        | 0.1                    | 0.1                     |
|                    | All Other Reasons                   | 9.1                    | 9.5                    | 7.0                    | 6.1                     |
|                    | Extended Employment                 |                        |                        | 0.4                    |                         |
|                    | Incarcerated                        | 0.5                    | 0.2                    | 0.2                    | 0.1                     |
| Type of Occupation | Management                          | 0.6                    | 0.6                    | 0.1                    | 0.7                     |
|                    | Business and Financial Operations   |                        | 0.2                    |                        | 2.3                     |
|                    | Computer and Mathematics            | 1.7                    | 0.4                    | 0.3                    | 4.7                     |
|                    | Architecture and Engineering        |                        |                        | 0.1                    | 1.0                     |
|                    | Life, Physical, and Social Sciences |                        | 0.6                    | 0.1                    | 1.3                     |
|                    | Community and Social Services       | 1.1                    | 0.6                    | 0.3                    | 0.4                     |
|                    | Legal                               |                        | 0.4                    |                        | 0.4                     |
|                    | Education, Training, and Library    | 0.6                    | 0.2                    | 0.6                    | 1.8                     |
|                    | Arts, Design, and Entertainment     | 0.6                    | 0.2                    | 0.3                    | 2.7                     |
|                    | Healthcare Practitioners/Technical  |                        | 0.6                    | 0.4                    | 1.6                     |
|                    | Healthcare Support                  |                        | 2.4                    | 0.5                    | 1.4                     |
|                    | Protective Services                 |                        | 0.6                    | 0.4                    | 1.6                     |
|                    | Food Preparation and Serving        | 21.0                   | 18.1                   | 18.4                   | 11.6                    |
|                    | Cleaning and Maintenance            | 10.8                   | 14.8                   | 13.3                   | 7.0                     |
|                    | Personal Care and Service           | 7.4                    | 5.4                    | 5.4                    | 4.0                     |
|                    | Sales                               | 9.7                    | 7.2                    | 9.8                    | 11.5                    |
|                    | Office and Administrative Support   | 22.7                   | 23.1                   | 22.3                   | 25.6                    |
|                    | Farming, Fishing, and Forestry      |                        | 0.7                    | 0.8                    | 0.1                     |
|                    | Construction and Extraction         | 2.3                    | 0.4                    | 0.5                    | 0.6                     |
|                    | Installation, Maintenance, Repair   | 4.0                    | 8.1                    | 6.3                    | 4.1                     |
|                    | Production                          | 8.5                    | 8.3                    | 10.1                   | 7.5                     |
|                    | Transportation/Material Moving      | 9.1                    | 7.6                    | 10.1                   | 8.1                     |
| Weekly Wages (SD)  |                                     | \$79.61<br>(\$120.92)  | \$108.35<br>(\$119.82) | \$129.08<br>(\$138.80) | \$207.80<br>(\$221.72)  |
| Hours Worked (SD)  |                                     | 8.8<br>(12.3)          | 12.4<br>(12.7)         | 14.3<br>(13.7)         | 19.1<br>(15.4)          |
| Hourly Pay (SD)    |                                     | \$8.88<br>(\$1.90)     | \$8.65<br>(\$2.30)     | \$8.88<br>(\$2.12)     | \$10.40<br>(\$4.30)     |

*Note.* Data are presented in percentages except for where noted otherwise. SD indicates standard deviation.

Table 3

*Average Costs of Services, Cost-Effectiveness, and Cost-Efficiency by Level of Education*

|   | <b>No High<br/>School<br/>Diploma</b> | <b>Special<br/>Education</b> | <b>High<br/>School<br/>Diploma</b> | <b>Postsecondary<br/>Education</b> |
|---|---------------------------------------|------------------------------|------------------------------------|------------------------------------|
| Cost of Services (All Participants)<br>(SD) | \$5,794<br>(\$7,154)                  | \$5,815<br>(\$6,246)         | \$5,673<br>(\$6,441)               | \$7,225<br>(\$8,853)               |
| Cost of Services (Employed)                 | \$7,413<br>(\$7,383)                  | \$7,073<br>(\$6,556)         | \$6,582<br>(\$6,218)               | \$8,065<br>(\$9,494)               |
| Cost-per-Hour Worked                        | \$842.39                              | \$570.40                     | \$460.30                           | \$422.25                           |
| Cost-per-Dollar Earned                      | \$93.12                               | \$65.28                      | \$50.99                            | \$38.81                            |
| Monthly Subsidies Received<br>(SD)          | \$274.99<br>(\$363.55)                | \$298.04<br>(361.61)         | \$245.54<br>(\$341.48)             | \$152.59<br>(\$304.50)             |
| Number of Months Until Cost-Efficient       | n/a                                   | n/a                          | 0.0 months                         | 16.0 months                        |

*Note.* Cost-efficiency analyses could not be conducted on the no high school diploma group because there were no levels of education below this cohort to which to make comparisons. Cost-efficiency was not conducted on the special education cohort, because there were not any savings in monthly subsidies (i.e., amount of monthly savings increased from the no high school diploma to the special education cohorts). Because the high school diploma cohort averaged a lower cost of services than participants in the special education cohort, individuals in the high school diploma cohort would automatically be more cost-efficient than those in special education.

# Extent of Student-College Matching for Students Enrolled in Special Education Services

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Katherine C. Aquino<sup>2</sup>

## Abstract

This study investigates the prevalence of postsecondary student-college match for students enrolled in special education services at the secondary education level by using data from the Education Longitudinal Study of 2002. This study examines alternative student-college match scenarios – including undermatch, match, and overmatch – and addresses the gap in research specific to college match and students in special education. Findings indicate that students who enrolled in special education services in high school undermatched to schools they had the potential of enrolling in. Moreover, undermatching for this student group increased if students were Black, Hispanic, or of low socioeconomic status.

*Keywords: student-college match; students with disabilities, transition from secondary to postsecondary education*

In recent years, researchers, policymakers, and practitioners have been charged with better understanding the factors that predict timely degree completion, particularly among students at four-year institutions pursuing bachelor's degrees. An emerging factor associated with degree completion is its relationship with institutional selectivity, often framed in terms of rankings such as Barron's Admissions Competitiveness Index. Specifically, the National Center for Education Statistics (NCES, 2016a) reported that at institutions where less than 25% of applicants are accepted, 89% of first-time, full-time students completed a bachelor's degree program from the first institution attended within six years of enrollment. Similarly, at institutions where 25-49.9% of applicants are accepted, 69% of first-time, full-time students completed a degree programs within six years from the first institution attended. Related to institutional selectivity, Light and Strayer (2000) found that students of all academic ability levels have a higher probability of four-year degree completion if the selectivity of the college they attend corresponds to their measured academic skill level, typically inclusive of observable characteristics such as grade point average and standardized test scores. This raises the question, to what extent is a student's academic

potential, institutional selectivity, and bachelor's degree completion related?

Although institutional selectivity and academic skill level contribute to any student's completion of postsecondary education, students with disabilities have a decreased likelihood for entry into and completion of higher education (Synder, de Brey, & Dillow, 2016; United States Census Bureau, 2017). Of all individuals aged 25 years or older within the United States, 28% of individuals with a disability have less than a high school education, compared with only 12% of individuals without a disability. Moreover, of Americans 25 years or older, only 13% of individuals with a disability possess a bachelor's degree or higher – less than half of the 31% of the same age range without a disability (United States Census Bureau, 2017). Holistically, only 11% of all students enrolled in postsecondary institutions have a self-identified disability (Synder et al., 2016) and, of students with disabilities attending postsecondary education, a larger portion attend two-year institutions and have difficulty transitioning from the two-year to four-year sector (Burgstahler, Crawford, & Acosta, 2001; Raue & Lewis, 2011).

Given that the selectivity of an institution is correlated with bachelor's degree completion (Light &

<sup>1</sup> Seton Hall University; <sup>2</sup> Manhattan College

Strayer, 2000), further investigation of this as a factor related to bachelor's degree completion – specifically understanding the extent to which students attend institutions with a selectivity that matches their academic potential is warranted – is something that can be framed in terms of a student-college match (Bowen, Chingos, & McPherson, 2009; Light & Strayer, 2000). The following sections detail this study's intent to carefully examine student-college match for all students, but with a focus on students with disabilities within the K-12 sector. For this study, students with disabilities will be identified through the enrollment in a special education high school program.

The study of student-college match is primarily situated at the “nexus of both college access and college completion agendas” and is linked to several policy issues (Rodriguez, 2013, p. 3). Initially, the study of student-college match emerged following the implementation and evaluation of affirmative action policies – an effort to determine if minority students were underqualified, based on grade point average and standardized test performance, for admission to postsecondary institutions. Similarly, other research examines the substantial number of economically disadvantaged students with high academic qualifications that attend less selective institutions (Bowen et al., 2009; Rodriguez, 2015). The latter is referred to as undermatch and is often considered an estimate based on a given set of observable student-level characteristics, typically including grade point average, standardized test scores, and participation in AP/IB courses, compared to the selectivity of the institution attended. Given its roots in several federal policies, researchers have a renewed interest and have investigated the extent of student-college match, but have primarily focused on undermatch (Belasco & Trivette, 2015; Bowen et al., 2009; Roderick, Nagaoka, Coca, & Moeller, 2008; Smith, Pender, & Howell, 2012).

Existing statistics indicate that student-college match is pervasive and affects students of all backgrounds. Using the NCES' Education Longitudinal Study of 2002 ([ELS], 2002), sponsored by the National Center for Education Statistics (U.S. Department of Education, n.d.; Ingels et al., 2014), Smith et al. (2012) estimated the extent of undermatch, occurring when a student attends an institution with a selectivity below their academic ability, to be about 41% of the college-going population – among the 2002 cohort of tenth grade students. Of the 41% that were found to have undermatched, the students possess a range of academic credentials, but the students were primarily from low socioeconomic status families (about half), live in rural areas, and have parents lacking a college degree (Smith et al., 2012). Simi-

larly, Bowen et al. (2009) found the “big fish-small pond” hypothesis, that is, attending a less selective institution in which a student is overqualified, resulted in lower degree completion rates among its sample of North Carolina high school graduates – a 15% point shortfall in adjusted degree completion rates for overqualified students. Likewise, in the Chicago Public School System, just one-third of students with four-year institution aspirations actually enrolled in a college that matched their academic qualifications (Roderick et al., 2008). Despite existing research indicating less prepared students struggle academically in higher selectivity schools (Heil, Reisel, & Attewell, 2014; Sander & Taylor, 2012; Sowell, 2003; Thernstrom & Thernstrom, 1997), the extent of other student-college mismatch types – including match or overmatch – are not empirically examined in the current body of literature.

In summary, academic student-college match types, specifically undermatch, are prevalent in existing studies, but little research exists regarding other scenarios, including match and overmatch. Further, little research exists regarding the relationship between student-college match and students who participate in high school-level special education programs.

As noted in Grigal, Migliore, and Hart (2014), “for people with disabilities, the importance of enrolling in and completing a postsecondary education program is magnified in relation to employment outcomes and earning” (p. 186). Despite this, students with disabilities have additional challenges and needs when preparing for and transitioning to college that may impact institutional choice or academic achievement at the postsecondary level (Garrison-Wade & Lehmann, 2009; Hitchings, Retish, & Horvath, 2005; Janiga & Costenbader, 2002; Morningstar et al., 2010; Papay & Bambara, 2011). Navigating the higher education system is a continuous process, with many situations contributing to the overall success (or difficulties) of the student (Roessler, Hennessey, Hogan, & Savickas, 2009; Ruh, Spicer, & Vaughan, 2009).

Unlike the postsecondary education structure where students with disabilities must self-identify to receive disability support services, the Individuals with Disabilities Education Act (IDEA) allows for schools and school staff (e.g., teachers, school psychologists, etc.) to provide services that support the socio-academic success of this student population within the K-12 sector. The IDEA not only mandates a free and appropriate public school education, but also provides the opportunity for supportive services to assist with student academic performance (United States Department of Education, n.d.). Although special education services are available to aid students'



academic success, research notes the potential negative impact of utilizing special education services on rigorous academic preparation and postsecondary opportunities (Harry & Klingner, 2014; Klingner & Harry, 2006; National Research Council, 2002).

In the 2013-2014 academic year, 6.5 million students were supported by the IDEA (National Center for Education Statistics, 2016b). Of the 13% of all students enrolled in U.S. public education who received special education services, significant variation occurred by student disability type, ethnicity, and gender. Of the students receiving special education services, 35% had a specific learning disability, 21% had speech or language impairments, 13% were considered with "other health impairment," 9% had Autism, 6% had an intellectual disability, 6% had a developmental delay, and the remaining 9% consisted of individuals with emotional disturbances, multiple disabilities, hearing impairment, or orthopedic impairment. Males consisted of a larger percentage of individuals receiving special education services; 16% of all males utilized IDEA services, compared to only 9% of all females. Moreover, there was variation by ethnicity for the percentage of students supported under IDEA, with 17% of all American Indian/Alaska Native students, 15% of all Black students, 13% of all White students, 1 % of Hispanic students, and 6% of all Asian students. Due to the variation in the student population who receive special education services, there may also be variation in need, ability, and opportunity for higher education, ultimately influencing postsecondary matching.

### Overview of the Study

This study sought to extend existing undermatch research by: (1) developing a student-college match indicator; (2) determining how many students who received K-12 special education services undermatch, overmatch, or match; (3) using comparative analysis for students in special education services and all others; and (4) incorporating an expanded student-college match methodological model, including additional student-level predictors when determining academic credentials. It is the intention of this study to examine the extent of student-college match types, specifically undermatch, among students with disabilities; understanding undermatching among this student population can provide rationale for the creation of additional curricular and extracurricular support, as well as strengthen collaborations throughout the campus environment to counteract undermatch's negative relationship with degree completion. This study was guided by the following research questions:

1. What is the extent of postsecondary student-college match for students enrolled in special education services at the secondary level, including undermatch, an overmatch, and a match?
2. For students enrolled in special education services at the secondary level, to what extent do postsecondary student-college match rates vary by socioeconomic status and race/ethnicity?

### Theoretical Framework

While no existing theory examines student-college match, Tinto's theory of integration (1975) seeks to explain the motivation behind students' decisions to leave postsecondary education, but also could be applied to students integrating as a function of their academic fit. Tinto's theory postulates that student departure is primarily motivated as a result of interactions between a student and the institutional environment (inclusive of social and academic components). The determination of a student-college match is typically based on the selectivity of the institution, as well as the predicted probability of admission given several student-level determinants clustered around demographic and socioeconomic characteristics, college-related attitudes and expectations, and admissions-related activities. As such, Tinto's theory can be applied to the study of student-college match as it can be understood as a measurement or natural extension of integration.

As noted in Hurtado and Carter (1997), Tinto's model did not address a perceived sense of inclusion for students considered racially or ethnically diverse. In reaction to the exclusionary aspects of Tinto's model, the concept of sense of belonging was proposed – a psychological measure of integration that addresses students' sense of feeling welcomed by their institution and their subsequent integration, cohesion, and success. Similar to perceptions and experiences of other diverse student groups, having a disability does not indicate that all students will share similar postsecondary experiences. Students with disabilities may not feel accepted in college, ultimately deterring their perceived inclusion and reinforcing "stereotypical beliefs and discriminatory practices" (Lechtenberger, Barnard-Brak, Sokolosky, & McCrary, 2012, p. 857).

Prior to deriving the student-college match indicator, a consistent approach for identifying institutional selectivity was addressed. For this study's student-college match indicator model, the selectivity of institutions was determined based on the Barron's Admissions Competitiveness Index. The Barron's

Index includes accredited four-year postsecondary institutions that admit incoming freshman students without any prior college experience and grant baccalaureate degrees (Barron's Educational Series Inc., 2004). The Barron's selectivity levels sorts institutions into several categories based on five criteria, including: (1) median entrance exam scores for the 2004-04 freshmen class; (2) percentage of 2003-04 freshmen scoring 500 and above and 600 and above on both the verbal and mathematics sections of the SAT or percentage of 2003-04 freshmen scoring 21 and above and 27 and above on the ACT; (3) percentage of 2003-04 freshmen who ranked in the upper fifth of their high school class and percentage who ranked in the upper two-fifths; (4) minimum class rank and grade point average required for admission; and (5) percentage of applicants to the 2003-04 freshmen class who were accepted. Given the selection criteria, Barron's categorizes institutions into seven selectivity levels, including: (1) Most competitive; (2) Highly competitive; (3) Very competitive; (4) Competitive; (5) Less competitive; (6) Noncompetitive; and (7) Special. Due to limited data for each selectivity category and guided by previous research (Roderick, Coca, & Nagaoka, 2011; Roderick, Nagaoka, Coca, Moeller, 2008; Roderick et al., 2006; Roderick, Nagaoka, Coca, & Moeller, 2009; Smith et al., 2012), the Barron's seven categories were collapsed into five groups, specifically: (1) two-year college; (2) nonselective; (3) somewhat selective; (4) selective; and (5) very selective.

Based on existing student-college match literature grounded in theory, several factors associated with college-going students were included in the student-college match model. These factors included demographic and socioeconomic characteristics, college-related attitudes and expectations, and admissions-related activities. First, demographic characteristics included gender, race/ethnicity, native language, urbanicity, dependent status, and socioeconomic status. By adding demographic characteristics, background effects can be controlled when assessing the influence of other variables in the model. The demographic and socioeconomic characteristics precede the model's other variables. Second, college-related attitudes and expectations ranged from academic achievement to extracurricular activities. Achievement-related variables included highest high school level math course completed, number of AP/IB courses, high school grade point average, college application activity, and the ELS cognitive test. Lastly, admissions-related activities incorporated guidance counselor interaction, teacher interaction, peer interaction, parental interaction, college publication/website usage, college representative interaction.

## Methodology

This study used data from NCES' ELS: 2002 (U.S. Department of Education, n.d.). The ELS is a nationally-representative, multilevel longitudinal survey that was specifically designed to track high school students as they progress from 10th grade through high school and on to postsecondary education or the workforce, or both (Ingels et al., 2014). Specifically, ELS: 2002 was used for this study as it is the most comprehensive source of nationally-representative data that includes: (1) pre-college academic achievement; (2) postsecondary aspirations; (3) postsecondary enrollment information; and (4) postsecondary degree completion status. Capturing data regarding a student's pre-college academic achievement, their desire to attend a postsecondary institution, and actual enrollment information are critical components for estimating the degree of student-college match. ELS:2002 has a great deal of data on students' demographic characteristics, attitudes and impressions of attending a postsecondary institution, and information regarding the college search, choice, and application process, which are critical for deriving the student-college match indicator.

The ELS:2002 was initially administered to high school sophomores in 2002, again when the cohort were high school seniors in 2004, two years following the cohort's scheduled high school graduation in 2006, and lastly in 2012, or ten years following initial survey collection. Data collection in 2006 captured self-reported information regarding postsecondary institutions to which students applied and were admitted, including information about the institution where they enrolled. This study is interested in this application data as the predicted probability model used to determine the likelihood of admission relies heavily on this to determine postsecondary access for students who were enrolled in special education to each selectivity level.

The ELS: 2002 full, established base year sample size includes approximately 17,754 students across about 750 secondary institutions, yielding an 87% weighted student response rate and a 68% school response rate (Ingels et al., 2014). Eligible sample members who had not responded in the prior follow-up were not contacted for subsequent follow-ups, that is, a respondent who had not responded in the second follow-up and in the first follow-up were not fielded for the third follow-up. The first follow-up sample was freshened and yielded a response rate of 89%. The second follow-up consisted of about 15,900 members, of which 14,200 completed the appropriate questionnaire – yielding an 88% response rate.

To address this study's research questions, data from the base-year (high school sophomores), first follow-up (high school seniors), and second follow-up (two years following the cohort's scheduled high school graduation) surveys were used. Further, a subset of only first-time full-time high school graduates in 2004 immediately entering a four-year institution were included in the analytic sample – that is, students attending a two-year or specialized institution, regardless of student-college match type, were excluded. NCES categorizes the ELS: 2002 students in this study's analytic sample as standard enrollees by virtue of immediately enrolling in postsecondary education and continuing their enrollment into 2006. To identify these students, the ELS: 2002 contains a second follow-up respondent type indicator that was used to help frame this study's sample. For ELS: 2002, immediate enrollment is defined as enrolling in a postsecondary institution by October following high school completion/exit year. By narrowing the sample frame and using the standard enrollees that continued to four-year postsecondary institutions and students who participated in the ELS: 2002 third follow-up, the weighted analytic sample for this study includes 6,455 students.

### Data Preparation

Prior to completing data analysis using a longitudinal data set, several preparatory steps were completed to assemble the dataset and prepare it for analysis. First, the ELS: 2002 institution and student files were merged with the Barron's Competitiveness Index file, including selectivity, acceptance, and enrollment data. Second, the handling of missing data was considered as it is an inevitable concern for any empirical study using large-scale secondary data. Thirdly, students enrolled in special education during the ELS: 2002 base-year (while in 10th grade) were identified using the dichotomous BYS33I indicator. Lastly, categorical variables were recoded in preparation for the logistic regression predicted probability model. Once these preparatory steps were completed, the predicted probability model was completed and the student-college match indicator was created. The following sections briefly outline the methods used for each of the preparatory steps and present this study's data analysis strategy.

As the missing data were determined to be missing at random, multiple imputation was used. Multiple imputation addresses single imputation's limitations by including an additional form of error based on the variation in the parameter estimates across the imputation, or "between imputation error" (Allison, 1999; Soley-Bori, 2013; Von Hippel, 2004). The multiple

imputation process is a similar-based procedure that replaces each missing value with potential values, which represent a distribution of possibilities (Schafer, 1997). After establishing convergence, MCMC was run a second time to generate five imputed data sets (Von Hippel, 2004). To complete the imputation, SPSS imputed incomplete variables one at a time and used the imputed variable from one step prior as a predictor in all subsequent steps. SPSS used linear regression to impute responses for missing continuous variables and logistic regression to impute responses for missing categorical variables (Von Hippel, 2004).

Once the missing values were imputed, dichotomous variables were created for each accepted institution for all students in the sample in preparation for completing the logistic regression predicted probability model. These dichotomous variables were created for each Barron's selectivity level and were used as the dependent variable for each logistic regression predicted probability model. Once completed for all students at each selectivity level, the highest selectivity level to which the student was predicted to be admitted was coded. This selectivity level was compared to the selectivity level of the institution in which the student enrolled. The two values were compared to derive the student-college match indicator.

### Deriving the Student-College Match Indicator

Prior to completing the statistical analysis for making a student-college match determination, the student-college match indicator was operationalized following the defined conceptual framework. The student-college match variable was derived using the both the Barron's Admissions Competitiveness Index and existing ELS: 2002 variables. This derived student-college match variable was then used to address this study's descriptive research questions.

**Determine enrolled institution selectivity.** All four-year institutions are assigned a selectivity level as part of the Barron's Admissions Competitiveness Index, including six selectivity categories encompassing the most competitive, highly competitive, very competitive, competitive, less competitive, and non-competitive (Barron's Educational Services, 2004). The selectivity of each respondent's first-attended postsecondary institution was coded as a derived categorical variable according to the following scale: (1) two-year college; (2) nonselective; (3) somewhat selective; (4) selective; or (5) very selective.

**Determine student's academic potential.** Like Smith et al. (2012) and Rodriguez (2015), this study estimated predicted probabilities using logistic regressions based on available students' application and admission data from the ELS:2002. Using this



approach, the probability of being admitted to each selectivity level based on demographic and socioeconomic characteristics, college-related attitudes and expectations, and admissions-related activities was calculated for each student. Variables related to demographics, college-related attitudes and expectations, and student admissions-related activities were included. A student's qualification level was determined based on the highest selectivity level to which they were accepted, given a probability of admission greater than 80 %. In prior studies, Smith et al. (2012) used a 90 % threshold, while Rodriguez (2015) used 80 %. An 80 % qualification level was selected for this study as the model incorporated additional predictors and, thus, the likelihood of more precise estimates is increased. Rodriguez (2015) notes, "the predicted probability approach yields the highest level of precision in determining the likelihood of student qualifications compared to other approaches" (p. 12).

**Student-college match indicator.** Once the predicted probability model was run for each student at each selectivity level, the highest selectivity category to which the student was found eligible for admission was identified and the computed variable was coded accordingly. This categorical variable was coded for the student's highest eligible selectivity level as either: (1) two-year college; (2) nonselective; (3) somewhat selective; (4) selective; or (5) very selective.

Once the derived highest selectivity eligible (student potential) and actual enrolled selectivity variables were created for each student, the student-college match indicator was derived. This variable was computed by comparing the derived variable representing the selectivity of the actual enrolled institution with the derived variable representing the highest selectivity potential. For cases where potential is less than enrolled, the case was coded as an undermatch; for cases where potential is greater than enrolled, the case was coded as an overmatch; and for cases where potential equals enrolled, the case was coded as a match. This derived student-college match indicator variable was coded as 0 = undermatched; 1 = matched; and 2 = overmatched.

### Data Analysis

The first stage of the data analysis will use this study's derived student-college match indicator to primarily explore descriptive statistics of the sample. To address this study's research questions and better understand the extent of student-college match types among students in special education services at the secondary level, all student-college match scenarios will be considered. A demographic snapshot of students in each category – including undermatch, over-

match, and match – will be provided, with an emphasis on predominant student-college match determinants.

Further, the extent of each student-college match type with an emphasis on socioeconomic status and race/ethnicity will also be examined. Descriptive analyses will include measures of central tendency, including frequencies, means, standard deviations, minimum, maximums, and cross-tabulations.

### Findings

The results presented are arranged into two sections that parallel this study's research questions. This section begins with a description of this study's full sample and the special education services subgroup and focuses on identifying the rate of post-secondary student-college match scenarios, while also describing the profile of students found to either undermatch, match, or overmatch. The second section continues the exploration of the study's sample, but specifically explores the extent to which student-college match types differ by student background characteristics, including socioeconomic status and race/ethnicity.

### Data and Sample

Prior to addressing the research questions, the study's sample was identified and all available application and admission data for eligible ELS: 2002 participants were aggregated. This resulted in 6,455 total weighted cases and 304 in special education services (4.7% of the full sample), each case containing multiple student and transcript-reported application and admission data points. This included institutions to which students applied, admissions decisions, and enrollment information – resulting in approximately 10,380 viable data points. By using all available admissions-related data from all respondents – including students that may have applied and been accepted to a four-year institution, but attended a two-year institution – the predicted probability method used for determining a student's potential, or the selectivity level to which a student is likely to be granted admission given observable characteristics, is more precise (Rodriguez, 2015).

Table 1 includes a comparison of demographic characteristics across the full sample, with a distinction for students in special education. Further, the distribution by race/ethnicity and socioeconomic status are included. Specifically, among Black students, almost 9% identified as participating in a special education program. Similarly, among students in the lowest socioeconomic group, almost 9% were part of a special education program.



### Extent of Student-College Match

To determine the extent of postsecondary student-college match for students enrolled in special education services at the secondary level, a three-step process was used. First, each student's potential for admission was predicted using 13 variables – including variables from categories such as demographic and socioeconomic characteristics, college related attitudes and expectations, and admissions-related activities. Given the variables in the model, Table 2 provides the distribution by highest predicted potential selectivity level the student would be eligible for admission and the distribution of actual enrollment by selectivity level.

Table 2 further details the distribution of background characteristics by predicted potential selectivity levels. Among high socioeconomic students, 13.3% qualified for either a very selective or selective institution; whereas among middle socioeconomic students, just about 2.5% were eligible for the same levels. Students in the lowest socioeconomic category, however, were often predicted eligible for the lowest selectivity levels – somewhat selective and nonselective – about 26% and 62%, respectively. Similar results were found for students in the middle socioeconomic group. That is, about 31% had a predicted selectivity potential of somewhat selective and about 64% had a predicted potential of nonselective. When examining race/ethnicity, among White students – the largest group – 41% and 49% had a predicted admission potential at either a somewhat selective or nonselective institution, respectively. Similar findings emerged regarding race/ethnicity – specifically with the majority of students eligible for the lower selectivity categories. Among Black and Hispanic students, the majority were predicted eligible for nonselective institutions – that is, 55% of Black students and about 75% of Hispanic students. Among Asian students, the distribution by predicted selectivity level was similar as approximately 45% and 50% achieved a predicted potential in the somewhat selective and nonselective categories, respectively.

Second, using the Barron's Admissions Competitiveness Index, each student's institutional selectivity level was determined based on their actual enrollment. Table 3 provides the distribution by selectivity level and select demographics. Compared to Table 2, no students in the sample were enrolled in a two-year institution, despite the 10.4% that were predicted to be eligible for just a two-year institution. These respondents enrolled in a four-year institution, likely within the nonselective category. Of those students in the sample, 12% enrolled in a very selective institution, 19% in selective, 38% in somewhat selective, and 31% in a nonselective institution.

Table 3 provides a snapshot of the demographic and background characteristics for students by actual enrolled selectivity levels. When examining low socioeconomic status students, about 36% and 39% enrolled in somewhat selective institutions or nonselective institutions, respectively. In contrast, among high socioeconomic students, the spread among very selective, selective, and somewhat selective institutions increased. That is, about 23%, 20%, and 39% enrolled in very selective, selective, or somewhat selective institutions, respectively. Like the predicted student potential, an increased number of Asian students (about 45%) enrolled in a somewhat selective institution, about 22% in a selective institution, and about 20% in a nonselective institution. Just 6% of Black students enrolled in very selective institutions – the majority enrolled in somewhat selective (about 42%) or nonselective (about 40%). Similarly, about 18% and 65% of Hispanic students enrolled in somewhat selective or nonselective institutions, respectively. For White students, the distribution by selectivity levels varied – with the majority in selective, somewhat selective, and nonselective institutions. Specifically, among White students, approximately 22%, 41%, and 23% were enrolled in selective, somewhat selective, or nonselective institutions, respectively.

Lastly, the highest potential selectivity level was compared to the actual enrolled selectivity level for each student to determine the type of student-college match. Table 4 provides the distribution by student-college match type. Of the 6,455 students in the full sample, 40.5% undermatched, 24.6% matched, and 34.9% overmatched. However, of the study's weighted special education subset ( $n = 304$ ), 51% undermatched, 25.6% matched, and 23.6% overmatched. This study's undermatch finding (40.5%) for the full sample is consistent with existing literature (Rodriguez, 2015; Smith et al., 2012) and suggests that many students attend four-year institutions that are not congruent with their academic potential. Likewise, and perhaps more notably, a similar number of students were found to overmatch, or attend an institution with a selectivity level above their academic credentials. The variation among students in special education services is noteworthy as it highlights that this student population undermatches at a greater rate than the overall student population enrolling in higher education.

Table 5 presents the distribution of student-college match types by socioeconomic status. Among students from the low socioeconomic category, about 63% – the majority – undermatched, while just 21% and about 16% matched or overmatched, respectively. Similarly, among middle socioeconomic students, about 59% undermatched and the remainder of the students matched (25%) or overmatched (16%). Con-

versely, among the high socioeconomic students, about 39% overmatched, while 29% matched and 32% undermatched.

When examining variation by race/ethnicity, Table 6 details the distribution by student-college match type. For White students, the distribution by match type was somewhat distributed; that is, 41% undermatched, 32% matched, and about 26% overmatched. A similar pattern emerged for Asian students; that is, about 41% undermatched, 33% matched, and 24% overmatched. In contrast, among Black students, approximately 68% undermatched, 15% matched, and 17% overmatched. Similarly, among Hispanic students, about 73% undermatched, 18% matched, and 11% overmatched. Students who identified as other race/ethnicity often undermatched (47%), but about 19% matched and 33% overmatched.

### Discussion

This research study provided additional clarity on an understudied topic within postsecondary education literature – college matching for students with disabilities. The student-college match concept captures the enrollment choices of students entering the postsecondary environment and whether these choices correspond to the observed academic potential of the student. Overall, findings presented in this study underscore that students with disabilities undermatch at a greater rate than the overall studied sample. As disability service providers, greater awareness is needed regarding student-college match tendencies to further assist with the support and advocacy of this student population. As such, this concept is especially important as previous research indicates undermatching is associated with lower degree completion rates (Bowen et al., 2009) -- a concept already well documented with this student population (United States Census Bureau, 2017).

For this research, students with disabilities were defined as individuals who enrolled in special education coursework and programs. As indicated in the findings and in support of previous research, the sample had a larger percentage of males than females enrolled in special education coursework (National Center for Education Statistics, 2016b). Conversely, the special education service sample only somewhat mirrored the ethnic breakdown of students in special education in U.S. public education. Black students were the largest group within the sample to participate in special education coursework at the secondary education level; this finding is similar to previous research identifying Black students as the second largest group enrolled in special education. Within

the sample, White students encompassed the smallest group of individuals participating in special education coursework, by race/ethnic type.

One of the study's research objectives was to identify the highest predicted potential selectivity level a student would be eligible for at postsecondary admission. Incorporating demographic and socioeconomic characteristics, college-related attitudes and expectations, and admission related activities, this study produced a theoretical model that identified a postsecondary institutional level that was most appropriate for each student. In the implementation of this model, the findings indicate significant disparity between the highest potential institutional option and actual enrollment for students who were enrolled in special education services during high school. Holistically, more students with disabilities undermatched. As this research study only investigated the actual enrollment within four-year institutions, if two-year institution enrollment was included in the analysis, findings of undermatching by students with disabilities may have been even more pronounced. One key finding was that, of the students who enrolled in special education coursework in high school, students identifying as Black, Hispanic, or of low socioeconomic status had the greatest percentage of undermatching.

### Limitations

While the ELS: 2002 provides invaluable data to explore this study's research questions, the data, and this study has substantive and methodological limitations that warrant discussion. Most notably, while the ELS:2002 spans from a student being in 10th grade to ten years later, the ELS:2002 sample is limited in its generalizability to three overall groups or populations: (1) spring 2002 high school sophomores; (2) spring 2004 high school seniors; or (3) spring 2002 10th grade schools.

From a methodological perspective, it is important to consider that a student-college match determination, regardless of how it is derived, should be considered strictly an estimate. As detailed and reiterated by Bastedo and Flaster (2014), a student-college match determination contains many assumptions. Most notably, a student-college match determination relies exclusively on a given set of observable characteristics that may not fully account for student potential.

Further, the method for stratifying institutions by selectivity is generally consistent for elite, selectivity institutions, but variance among less selective institutions is often problematic. While this study used a collapsed version of the Barron's Admissions Competitiveness Index, the potential for local or regional

institutional reputations associated with less selective colleges can skew selectivity ratings. As noted in existing literature, this is often a concern when considering Historically Black Colleges and Universities (HBCU). That is, an institution's cultural reputation may be more highly valued by a prospective student over its institutional selectivity, despite the student's predicted potential for admission to a more selective institution (Smith et al., 2012). Similarly, some HBCUs may be more selective than the academic profile (as measured by test scores, class rank, and GPA) of its applicant pool.

Lastly, this study identifies students with disabilities as individuals enrolled in special education services, specifically the participation in special education coursework and/or services, in secondary education. As the concept of "students with disabilities" can have varying interpretations (i.e., self-identified, identified through the use of K-12 educational services, among others), it is important to highlight this definition for the reader. Moreover, due to the limited number of qualifying cases, special education was not considered as an independent predictor variable when determining admissions likelihood, nor a component of the derived student-college match indicator.

## Conclusion

Research indicates a gap in the desire and potential to enter into higher education and actual enrollment, and varies widely by socioeconomic and racial groupings (Berkner & Chavez, 1997). For individuals participating in special education services who are already at a decreased likelihood for postsecondary enrollment, low socioeconomic status, or possessing a historically underrepresented minority background are even at a lesser rate of enrollment opportunity (Blair & Scott, 2002; Newman, Wagner, Cameto, Knokey, & Shaver, 2010; Sanford et al., 2011). Although student-college match may initially appear as an admissions or enrollment management challenge at the postsecondary level -- as disability support providers are charged with supporting the needs of this student population already enrolled at their respective institutions, disability support providers serve as a unique role in further exploring how to support students with disabilities who undermatch.

Building on the current literature and attempting to address the understudied topic of college undermatching for students with disabilities, this study found that students who enrolled in special education services in high school undermatched to schools they had the potential of enrolling in. Moreover, undermatching for this student group increased if students

were Black, Hispanic, or of low socioeconomic status. With these findings, it can be inferred that students with disabilities are not only at a decreased likelihood to think about and/or plan for higher education but, if they do decide to enroll in postsecondary education, they will choose institutions less selective than their actual potential. As students enrolled in special education services within the K-12 sector are often stigmatized, engaged in a less rigorous curriculum, and have lower expectations for academic performance (Harry & Klingner, 2006; Hehir, Grindal, & Eidelman, 2012; Klingner & Harry, 2014; National Research Council, 2002), several factors may impede in enrolling in attainable institutional options. Additional exploration is needed to better assess the specific reasons for undermatching for students with disabilities.

As students with disabilities are at a greater likelihood to apply and/or enroll in institutions that are not congruent with their academic potential, there is rationale for greater preparation during the K-12 to higher education transition process, allowing students with disabilities more options and greater preparation for appropriate student-college match. Driven by the noted findings, it may be beneficial for disability service providers to work with their institutions' admissions teams to provide materials and resources to share with students with disabilities within secondary education preparing for college enrollment. Additionally, creating materials to share with high school guidance counselors could provide valuable information addressing perceived trepidation students with disabilities may feel prevent their enrollment in an appropriate institution. It is essential that disability service providers leverage available support and resources to facilitate the enrollment of students with disabilities throughout the college choice and application processes to assist in identifying an ideal student-college match.

Although the concept of student-college match is not frequently addressed as a practice-based concept, and instead a research-driven idea, disability support providers should explore the idea of student-college match, as it further allows the understanding of students with disabilities outside of an aggregated group. As disability support providers, we understand that although students with disabilities all need support and some form of accommodation, each student is an individual, with unique characteristics, experiences, and levels of preparation for the postsecondary environment. That said, disability support providers must be cognizant that students vary not only in their preparation for higher education, but their institutional decisions as well. With this study's findings detailing that students with disabilities have a great-



er likelihood of undermatching, disability support providers can collaborate with other departments, including career services and graduate studies, to facilitate ongoing and comprehensive opportunities to strengthen the undermatched student's academic journey. If a student is capable of more, disability support providers are in favorable circumstances to serve as the point person to further facilitate opportunities for student development.

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Table 1

#### *Demographic Characteristics of ELS:2002 Full Sample and Special Education Subset*

| Variable             | N     | Special Education | Non-Special Education |
|----------------------|-------|-------------------|-----------------------|
| Gender               |       |                   |                       |
| Male                 | 2,918 | 6.10              | 93.90                 |
| Female               | 3,537 | 3.56              | 96.44                 |
| Race/Ethnicity       |       |                   |                       |
| White                | 4,302 | 3.63              | 96.37                 |
| Black                | 809   | 8.78              | 91.22                 |
| Hispanic             | 590   | 4.41              | 95.59                 |
| Asian                | 358   | 5.59              | 94.41                 |
| Other                | 396   | 7.83              | 92.17                 |
| Socioeconomic Status |       |                   |                       |
| Lowest               | 888   | 8.78              | 91.22                 |
| Middle               | 2,899 | 4.28              | 95.72                 |
| Highest              | 2,668 | 3.82              | 96.18                 |

*Note.* Weighted; Row percentages may not equal 100% due to rounding. Source: U.S. Department of Education. (n.d.). National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 2

*Select Demographic Characteristics of ELS:2002 Special Education Respondents Enrolled in Four-year Institutions by Highest Potential Selectivity Level*

| <b>Variable</b>               | <b><i>N</i></b> | <b>Very<br/>Selective</b> | <b>Selective</b> | <b>Somewhat<br/>Selective</b> | <b>Nonselective</b> | <b>Two-year</b> |
|-------------------------------|-----------------|---------------------------|------------------|-------------------------------|---------------------|-----------------|
| Gender                        |                 |                           |                  |                               |                     |                 |
| Male                          | 178             | 1.91                      | 5.51             | 34.72                         | 53.71               | 4.16            |
| Female                        | 126             | 0.32                      | 4.44             | 37.78                         | 55.24               | 2.54            |
| Race/Ethnicity                |                 |                           |                  |                               |                     |                 |
| White                         | 156             | 1.28                      | 6.92             | 41.41                         | 48.72               | 1.41            |
| Black                         | 71              | 1.41                      | 2.25             | 32.11                         | 54.93               | 9.86            |
| Hispanic                      | 26              | 0.00                      | 1.54             | 20.00                         | 75.38               | 5.38            |
| Asian                         | 20              | 5.00                      | 1.00             | 45.00                         | 50.00               | 0.00            |
| Other                         | 31              | 1.29                      | 7.10             | 25.16                         | 67.74               | 0.00            |
| English as Native<br>Language |                 |                           |                  |                               |                     |                 |
| English                       | 255             | 0.94                      | 5.33             | 37.41                         | 52.31               | 4.16            |
| Non-English                   | 49              | 2.86                      | 3.67             | 28.57                         | 64.90               | 0.00            |
| Socioeconomic<br>Status       |                 |                           |                  |                               |                     |                 |
| Lowest                        | 78              | 0.51                      | 2.56             | 25.64                         | 62.05               | 9.23            |
| Middle                        | 124             | 0.65                      | 1.94             | 31.13                         | 63.87               | 2.58            |
| Highest                       | 102             | 2.55                      | 10.78            | 49.80                         | 37.45               | 0.00            |

*Note.* Weighted; Row percentages may not equal 100% due to rounding. Source: U.S. Department of Education. (n.d.). National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 3

*Select Demographic Characteristics of ELS:2002 Special Education Respondents Enrolled in Four-Year Institutions by Actual Enrolled Selectivity Level*

| <b>Variable</b>               | <b><i>N</i></b> | <b>Very<br/>Selective</b> | <b>Selective</b> | <b>Somewhat<br/>Selective</b> | <b>Nonselective</b> | <b>Two-year</b> |
|-------------------------------|-----------------|---------------------------|------------------|-------------------------------|---------------------|-----------------|
| Gender                        |                 |                           |                  |                               |                     |                 |
| Male                          | 178             | 13.48                     | 20.11            | 34.49                         | 31.91               | 0.00            |
| Female                        | 126             | 10.32                     | 17.46            | 42.22                         | 29.84               | 0.00            |
| Race/Ethnicity                |                 |                           |                  |                               |                     |                 |
| White                         | 156             | 14.10                     | 21.67            | 41.41                         | 22.56               | 0.00            |
| Black                         | 71              | 6.20                      | 12.11            | 41.69                         | 40.00               | 0.00            |
| Hispanic                      | 26              | 3.08                      | 15.38            | 18.46                         | 65.38               | 0.00            |
| Asian                         | 20              | 14.00                     | 22.00            | 45.00                         | 20.00               | 0.00            |
| Other                         | 31              | 21.94                     | 22.58            | 23.87                         | 32.26               | 0.00            |
| English as Native<br>Language |                 |                           |                  |                               |                     |                 |
| English                       | 255             | 12.24                     | 18.90            | 40.16                         | 28.78               | 0.00            |
| Non-English                   | 49              | 12.65                     | 19.18            | 26.12                         | 42.45               | 0.00            |
| Socioeconomic<br>Status       |                 |                           |                  |                               |                     |                 |
| Lowest                        | 78              | 7.18                      | 17.44            | 36.15                         | 38.97               | 0.00            |
| Middle                        | 124             | 6.45                      | 19.03            | 37.58                         | 36.77               | 0.00            |
| Highest                       | 102             | 23.14                     | 20.00            | 39.41                         | 18.24               | 0.00            |

*Note.* Weighted; Row percentages may not equal 100% due to rounding. Source: U.S. Department of Education. (n.d.). National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).



Table 4

*Distribution of Students by Student-College Match Type*

| Population        | <i>N</i> | Undermatch | Match | Overmatch |
|-------------------|----------|------------|-------|-----------|
| All Students      | 6,455    | 40.5       | 24.6  | 34.9      |
| Special Education | 304      | 51.0       | 25.6  | 23.6      |

*Note.* Weighted; Row percentages may not equal 100% due to rounding. Source: U.S. Department of Education. (n.d.). National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 5

*Distribution of Student SES by Student-College Match Type*

| Socioeconomic Status | <i>N</i> | Undermatch | Match | Overmatch |
|----------------------|----------|------------|-------|-----------|
| Low SES              | 78       | 63.33      | 21.03 | 15.90     |
| Middle SES           | 124      | 59.03      | 25.32 | 15.81     |
| High SES             | 102      | 31.57      | 29.80 | 38.82     |

*Note.* Weighted; Row percentages may not equal 100% due to rounding. Source: U.S. Department of Education. (n.d.). National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).

Table 6

*Distribution of Student Race/Ethnicity by Student-College Match Type*

| Race/Ethnicity | <i>N</i> | Undermatch | Match | Overmatch |
|----------------|----------|------------|-------|-----------|
| White          | 156      | 41.28      | 31.92 | 26.15     |
| Black          | 71       | 67.61      | 14.65 | 17.18     |
| Hispanic       | 26       | 73.85      | 17.69 | 10.77     |
| Asian          | 20       | 41.00      | 33.00 | 24.00     |
| Other          | 31       | 47.10      | 19.35 | 32.90     |

*Note.* Weighted; Row percentages may not equal 100% due to rounding. Source: U.S. Department of Education. (n.d.). National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002).



# **An Academic Consultation Model for College Students with Disabilities (Practice Brief)**

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## **Abstract**

This paper describes the academic consultation services offered to students with disabilities (SWD) at a small university. Each SWD is entitled to meet regularly with an academic consultant. The consultants are trained in offering a variety of services, including organization/time management, note-taking/reading comprehension strategies, goal setting, self-advocacy, stress management, school work, and social skills. They receive weekly supervision, but are given much freedom to determine the content of sessions. This paper examines the specific activities addressed within sessions of six academic consultants who met with a total of 33 SWD. Four patterns of consultation were observed. With some students, consultants focused primarily on one activity (i.e., either schoolwork or organization/time management). With others, multiple areas were addressed regularly (i.e., shifting between schoolwork and interfering needs or shifting among several areas). Patterns were not consistent for students with similar disabilities. Similarly, consultants addressed different activities with different students. Thus, the consultants appeared to focus on students' specific needs, which is a key feature of this model. It is suggested that academic consultants can be important resources for students, especially when support is provided at the individual level.

*Keywords: academic consultation; students with disabilities, higher education*

The passing of the Americans with Disabilities Act (ADA) in 1990 mandated delivery of services to accommodate the needs of individuals with disabilities in a range of settings, including higher education. While the provisions of ADA have brought considerations of accessibility and accommodation to the forefront for colleges, there appears to be a lack of consensus on what constitutes effective practice in this domain (Mull, Sitlington, & Alper, 2001; Rath & Royer, 2002), though various models have been described recently (e.g., Brand, Valent, & Danielson, 2013; O'Connell, Burch, & Shea, 2017). With the exception of these theoretical models, much of the limited research available is dated, suggesting that while colleges provide services, there is not a large empirical base to determine what specific services could be helpful to students with disabilities (SWD).

Currently, assistance for postsecondary SWD is typically offered within a comprehensive model that may include accommodations and services that are provided through multiple offices. For example, SWD may receive exam accommodations arranged

through a disability services office, while obtaining writing support from an academic support center that serves the entire student population. When these divisions are made, the disabilities services office may include just a few personnel who coordinate accommodations that are required by ADA and provide referrals to outside offices, as needed. In fact, in-person direct service provision is often not possible given limited personnel within these offices, as was cited as a barrier for collaboration between offices for disability services and teaching/learning services offices (Behling & Linder, 2017). While it is important for SWD to have the opportunity to receive a variety of services, regardless of where the services are housed, there can be a disconnect between offices. For example, in a small sample study, researchers noted that several students with hidden disabilities (e.g., LD) reported that they were unlikely to use the office for disability services because they did not believe they had severe enough symptoms for utilization of such a service. Additionally, they reported that the campus learning center was not beneficial to them because

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the personnel working there did not fully understand the areas in which the student had difficulty. Instead, the focus was described as being standardized for all students (Couzens et al., 2015). Lack of coordination between these offices can result in SWD, particularly those who need improvement in their self-advocacy skills, to miss out on supports they need to succeed academically.

In determining what services *should* be provided to SWD, one literature review found that 65% of research articles regarding services for college students with disabilities discussed the need to provide *instructional strategies* (Mull et al., 2001). According to Rath and Royer's (2002) domains, instructional strategies can be considered *environment-changing* or *student changing*. Environment-changing approaches alter the academic environment to create equal access for SWD. Meanwhile, student-changing approaches attempt to provide learners with the skills needed to be more successful. Services falling into the latter category consist of psychotherapy, academic counseling, and strategy training, such as study skills training.

Research regarding student-changing approaches suggests that services are beneficial. For example, one university determined the level of services they believed was needed for each SWD (e.g., amount of time per week to be spent gaining instruction). Students who adhered to the suggested number of hours were more likely to graduate (Troiano, Liefeld, & Trachtenberg, 2010). In another study, the use of academic guidance resulted in an academic increase that generalized to different contexts (Butler, 1995). At a different institution, SWD who utilized a program where they were provided with tutoring, note-taking, recorded textbooks, counseling, and remedial services were more likely to graduate in four years than those who did not use the program each year (Cowles & Keim, 1995). Consequently, it appears that programs that provide a variety of accommodations, including academic advising, counseling, or consulting services for SWD are effective in helping students graduate. However, the above studies did not assess the effects of each individual service. Thus, it is unknown whether particular services contribute more than others to student outcomes. Additionally, despite these findings, it appears that many colleges provide required accommodations, but do not go beyond to offer regular support for SWD (Janiga, & Costenbader, 2002).

### Depiction of the Problem

Recent literature regarding student-changing services, such as academic consultation, is limited. In the extant literature, academic consultation has also

been referred to as academic coaching, which is defined as the provision of consistent support for students in identification of personal strengths, goals, study skills, engagement, academic planning and performance (Robinson & Gahagan, 2010). To further explore academic consultation, this paper includes a description of the academic consultation services offered to SWD at one university. Previous research at this university found that SWD who met with a consultant at least four times had significantly higher GPAs in the fall semester than those who met with a consultant less often. In addition, every meeting with a consultant after the fourth meeting resulted in a 0.13 average grade point increase (Lighthouse, 2005). These findings were consistent with the few studies available regarding academic consultation or coaching at other institutions; in each instance SWD who received this type of support demonstrated improved GPAs (Parker, Hoffman, Sawilowsky, & Rolands, 2011; Robinson & Gahagan, 2010). Improved executive functioning skills and stress management (Bellman, Burgstahler, & Hinke, 2015; Field, Parker, Sawilowsky, & Rolands, 2013) are also related to this individualized support for SWD.

The above studies suggest that consultation sessions are beneficial; however, they do not indicate what about the sessions may have assisted the SWD. The current study attempted to begin determining which consulting activities may be beneficial by examining the activities in which academic consultants at our university engage with SWD. At this university, consultants are all provided the same training regarding disabilities and services, but they are given freedom in structuring their sessions. Therefore, individual consultation sessions vary based on consultant and the students' needs. We were attempting to determine if consultants tended to have a particular style, or if services related to the students' specific disabilities. Clarifying the impact of these factors could help institutions of higher learning select student-changing services that have maximum benefit for SWD, and may encourage institutions that are not providing such services to do so. In turn, this could translate into greater academic success and increased college graduation rates for SWD.

### Participant Demographics

#### Academic Consultants

Six trained academic consultants, who were school psychology graduate students at a university in New York State, participated as service providers. Five of the consultants were second-year students and one was a third-year student. All six were female.



The academic consultants had completed at least one year of graduate study and had a strong knowledge base in disabilities, assessment, counseling, and consultation. They also received explicit training regarding the consultant role prior to each semester of employment. Training included several days of workshops regarding types of disabilities and services. Consultants were instructed on evidence-based practices regarding organization, time management, note-taking, and study skills that they could then teach to SWD. They were also taught about legal requirements, as well as agency and university policies regarding SWD on campus.

With regard to their role, consultants contacted SWD regularly to organize and encourage receipt of accommodations. Consultants also facilitated and coordinated meetings with students to address skill deficits. They collaborated with faculty and parents on an as-needed basis, as well.

### **Student Participants**

Of the 69 undergraduate SWD signed up for consultation at the university, 33 participated (14 females, 19 males). The majority of participants were Caucasian (84.8%), with 9.1% of the sample identifying as Black/African-American, and 6.1% identifying as Hispanic/Latino. Their mean age was 20.68 years ( $SD = 2.9$ ; Range = 18-31). They had attended an average of 2.24 years of college, with 33.3% in their first year, 30.3% in their second year, 15.2% in their third year, and 21.2% in their fourth year or beyond. A variety of academic majors were represented. Specifically, 27.3% of participants majored in Art and Design, 21.2% in Engineering, 15.2% in Psychology, 9.1% in Environmental Studies/Geology, 6.1% in Criminal Justice, 18% in other areas, and 3% were undecided. With regard to disability, 36.4% of the sample self-identified as having Attention Deficit Hyperactivity Disorder (ADHD), 30.4% as Learning Disability (LD), and 6.1% as both ADHD and LD. Autism Spectrum Disorder (ASD) was reported as the primary disability for 12.1% of the sample, medical disabilities by 9.1%, anxiety disorders by 3%, and auditory processing by 3%. The mean GPA of the sample was 2.63 ( $SD = .62$ ; Range = 1.02-3.73), lower than the mean GPA (3.01) of all students at the university in the same semester (L. Casey, personal communication, July 31, 2017).

### **The Present Model of Academic Consultation**

The office that serves SWD at the authors' university uses a model that was developed over fifteen years ago. As described by O'Connell et al. (2017),

the office utilizes a multi-tiered system of support (MTSS) with three levels in order to support all students on campus, including providing academic consultation to SWD within the third tier. The office employs a full-time director and assistant director, as well as six academic consultants who work in the office for 15 hours per week; see Figure 1 for hierarchy of personnel and their responsibilities.

Within the office, all university students are provided the opportunity to receive academic support, similar to what is provided by learning centers on other campuses. For example, group and individual tutoring, supplemental instruction, and writing center services are coordinated within the office. Academic consultants work with students without disabilities (SWOD) when recommendations are made by faculty or staff, as well. Having such a model where services are provided to SWD and SWOD in the same office allows for consistency in the provision of services and accommodations. It also reduces the resources utilized, as duplicate services are not provided in separate settings for SWD and SWOD. At institutions where learning centers already exist, academic consultation could be incorporated to focus primarily on particular populations of students (e.g., SWD) or specific skills (e.g., social skills or time management/organization) that may not be addressed within current models. Strategically implementing consultation in these ways would expand support for students and prevent duplication of services.

All SWD at the present university are assigned an academic consultant, with whom they can meet regularly. Consultation is the service most commonly used by SWD and consists of individual meetings to address environment-changing and student-changing strategies. The frequency of meetings is determined by students' needs and willingness to participate. In general, SWD are encouraged to meet with their consultant at least monthly. Weekly or bi-weekly meetings are suggested to first year students due to transition concerns.

The consultants may offer a variety of services. These services include organization/time management, note-taking/reading comprehension strategies, goal setting, self-advocacy, stress management, school work, and social skills. Additionally, rapport building is an important activity that is used in consultation sessions to foster a relationship that encourages use of services. See Figure 2 for a description of the specific activities within each service. During the study, consultants conducted sessions as they typically would with students, but after each session, consultants recorded the percentage of time devoted to each consultation service. To ensure that consultants cat-

egorized in-session activities similarly, training was provided the week prior to the start of the semester. During training, consultants received a list of consultation services (Figure 2) that attempted to capture all of the activities typically completed in consultation sessions. After reviewing the list, the consultants watched three training videos and then estimated the percentage of time they witnessed each of the activities. Results were discussed after viewing each video and indicated strong consistency among consultants.

### Evaluation of Observed Outcomes

Although there was a large range (1 – 20), SWD attended a mean of 7.6 sessions ( $SD = 4.74$ ) with their academic consultants within one semester. Of more importance, however, were the activities that occurred within sessions. Analysis of the time spent in sessions indicated that the majority was focused on school work ( $M=32\%$ ) and organization/time management ( $M=20.8\%$ ). Self-advocacy ( $M=11.52\%$ ) and goal-setting ( $M=10.01\%$ ) seemed to be used strategically in response to specific student concerns. Rapport building, note-taking/reading comprehension strategies, stress management, and social skills were used infrequently.

To analyze the activities completed during academic consultation sessions, data for each session were plotted graphically for all participants by percentage of time spent in each of the nine categories listed above. A separate graph was created for each participant. Data points for each activity were connected across sessions to create one line for each activity. In order to identify patterns across and within sessions, the graphs were visually inspected by placing each graph side by side based upon possible categories of influence, including disability type and academic consultant. It seemed possible that students with the same type of disability may show similar patterns of focus in their sessions. Additionally, it could have been the case that consultant strengths or areas of interest could result in the use of specific services with all of the students on their caseload.

No patterns emerged when the graphs were organized by disability or by academic consultant. Students did not necessarily focus on tasks that appeared related to their disability. For example, students with ASD did not tend to work on social skills. Further, each consultant utilized a variety of activities; nearly 70% of the SWD worked on at least six skills across their sessions. This suggests that the consultants responded to individual student needs.

Upon visual inspection of all 33 graphs simultaneously, four patterns of consultation became appar-

ent. These patterns are included in Figures 3 through 6. The most frequently occurring pattern was a focus primarily on schoolwork; 39.4% of the SWD spent the majority of their sessions managing school-related activities. Several SWD (24.2%) shifted focus frequently throughout sessions. Visual inspection of these graphs showed variation in the amount of time spent on specific skills from session to session or several skills addressed within each session. Organization and time management was the main focus for 15.2% of students. The final pattern depicted in the graphs (9.1% of SWD) was shifting between schoolwork and interfering needs. For these students, the focus of most consultation sessions was schoolwork, but in other sessions, the focus shifted to requisite skills (e.g., stress management, goal setting, or organization) needed to complete schoolwork. Approximately 12% of participants attended too few sessions to determine a pattern of consultation. In these cases, the SWD had attended no more than two sessions and the percentage of time spent within each category varied from session to session. Because there were so few data points, clear patterns could not be determined.

### Implications

There were several findings about the session content that appear to be relevant in planning services for SWD. First, it was evident that academic consultants were student-centered in meeting diverse needs across sessions. This was observed in both the range of activities implemented and the apparent changes to services provided when interfering issues arose. Most of the consultants provided support in all of the categories at least once with each student. Additionally, even when a consultant spent most of their time assisting a student with one particular skill, such as academics, they changed the focus of sessions when other difficulties were shared by the SWD. We cautiously view this finding as positive, as it appears to meet the students' needs which may lead to greater meeting attendance. However, it may be the case that what SWD *want* to address in sessions is not what they *need* to do to improve academically.

Second, the results indicate that the majority of time spent in consultation sessions focused on school work and organization/time management. This is not surprising given that the largest concern for students is likely to be completion of their schoolwork. It should be noted that this finding occurred even though the university offers tutoring services. Perhaps this is due to the strong relationships established between consultants and students or the higher level of academic needs among SWD. Further, over one third of the

participants in this sample were diagnosed with LD, suggesting that academic difficulties in a particular area would be the prominent goal for seeking consultation support.

A third finding indicated that although the consultants tended to focus largely on a small number of services (i.e., school work and organization/time management), they did use other services on occasion. This suggests that providing training in all of these areas is warranted.

Moreover, we did not identify a link between disability type and student needs, as measured by activities completed within consultation sessions. Thus, although logic would suggest that SWD may benefit from learning skills that may eradicate their symptoms, it seems that matching students to specific activities based on disability alone may not best meet their needs. Instead, each SWD's individual needs could be determined, as was done by the consultants in this study, and reevaluated in each meeting. Again, further assessment of consulting sessions in relation to college success would be needed to determine if this is the case.

One important feature of this consultation model is that participation is voluntary. Given that SWD in all academic years *chose* to use consultation services, and most often, attended multiple sessions, it appears that they valued the services. Thus, offering a range of services beyond those that are legally required appears warranted. For example, though SWD are provided with exam accommodations, it does not mean they know how to study or take the exam; consultants can play an important role in enhancing these skills.

Although this model holds important practical implications about academic consultation, there are some limitations to both the study and the model. Due to the small number of participants that were tracked, it was not possible to conduct any inferential statistical analyses regarding the activities conducted in consultation sessions. Additionally, consultants were only asked to track services for one academic semester and SWD could choose not to participate. Tracking in-session activities as a regular part of consultation may be considered and would allow for a longitudinal review of services, as well as determination of whether specific services predict academic success.

Although further research is needed to fully evaluate the impact of each aspect of this model of academic consultation, the analyses that exist suggest that it is beneficial overall (e.g., Lighthouse, 2005). It has been assumed that part of the program's success is the nature of the *relationship* between consultants and SWD, rather than the activities that occur. Further research could evaluate this assumption, as

well as whether consultation in small groups might be similarly beneficial. Regardless, adding in a regular, personal context may be beneficial for SWD. In this instance, it was decided to use school psychology graduate students as the consultants, as they are already trained in completing most of the required tasks. There are benefits to this approach, both in terms of cost to the university and because of the experience gained by the graduate students. However, the pitfall to using graduate students is they generally remain on campus for only two or three years, and as a result, most often SWD have at least two consultants while attending the university. It is unknown whether the transition from one consultant to another impacts either the focus of activities within sessions or student outcomes. To address this, larger numbers of students should be followed for longer periods of time in order to discern the efficacy of consultation across consultants.

Further, the use of graduate students in education, special education, counseling, or psychology, as well as traditional employees with degrees in these fields could also be trained to serve as consultants. If an institution were to follow this model, consultants would likely benefit from explicit training and preparation on how to conduct a wide array of activities with SWD, and from continued supervision in implementing these services.

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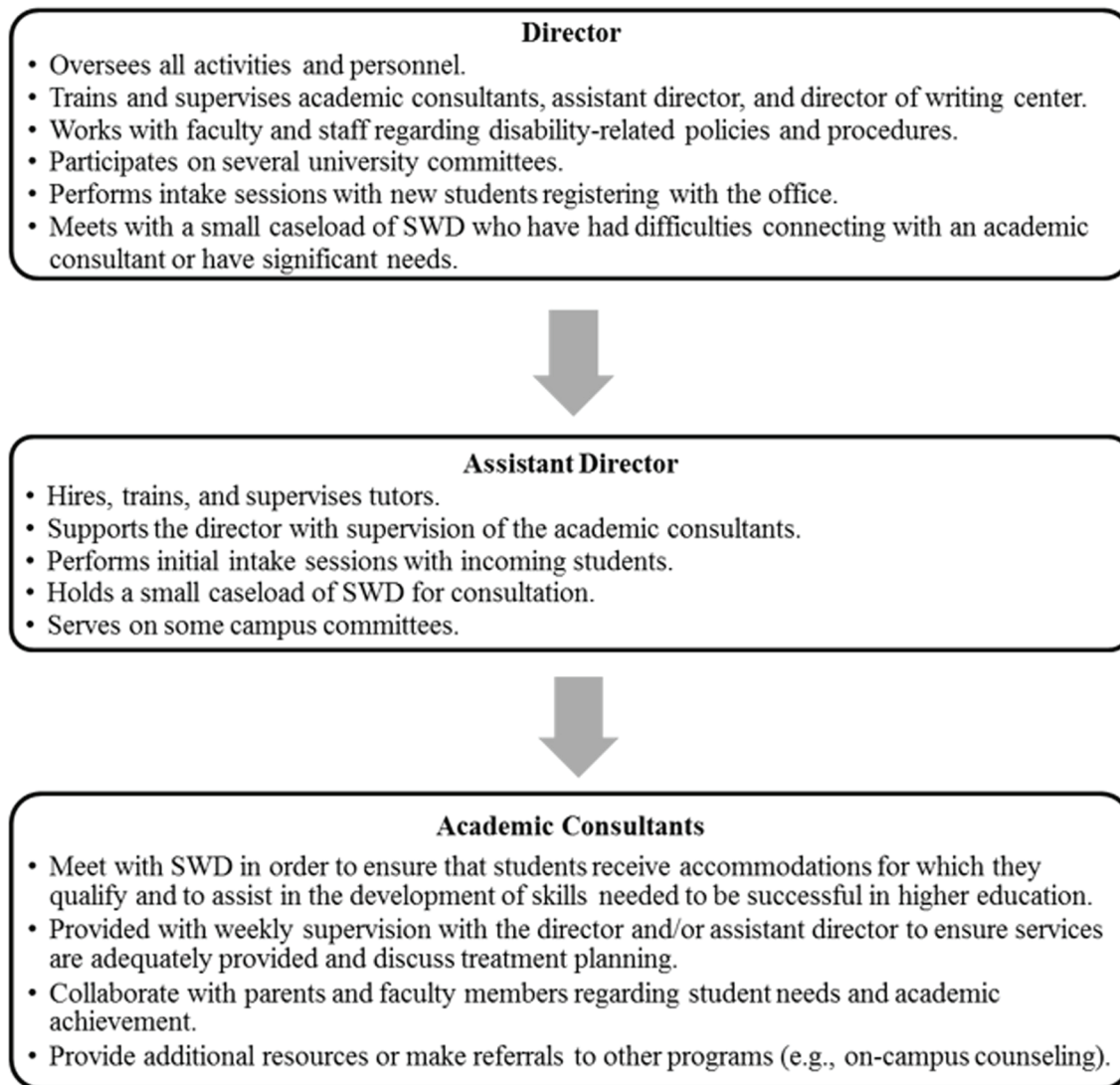


Figure 1. Hierarchy of roles and responsibilities of personnel at office for SWD.

### Rapport Building

- Engaging student in conversation intended to build or maintain the relationship

### Organization/Time Management

- Advising, consulting about, directly instructing, or listening to the student describe organization and time management activities such as: noting important dates in syllabi; making daily, weekly, monthly, semester calendars; making to-do lists; organizing a planner; putting work into appropriate folders/binders/etc.; or labeling folders, binders, class materials

### Note-Taking/Reading Comprehension Strategies

- Advising, consulting about, directly instructing, or listening to the student describe appropriate note-taking strategies and reading comp strategies such as: going over notes and pulling out important information; teaching students how to take notes; training students in active reading; checking for comprehension; or summarizing reading

### Goal Setting

- Advising, consulting about, directly instructing, or listening to the student describe activities such as: determining what should be done (academically, socially, athletically, etc.) for the day, week, semester, year; in session, in particular classes, in college overall or reviewing progress toward goals

### Self-Advocacy

- Advising, consulting about, directly instructing, or listening to the student describe self-advocacy skills, such as: communicating with professors (role plays, suggestions about working when speaking to professors); planning for students to reach out to others on their own (signing up for notes, tutors, exam accommodations, etc.); or discussing progress toward self-advocacy

### Stress Management

- Advising, consulting about, directly instructing, or listening to the student describe stress management skills, such as: talking about how to reduce stress (e.g., avoiding stressors, expressing feelings/counseling, focusing on the positive, arranging time for fun/relaxation, breathing exercises/relaxation videos) or discussing strategies student already has

### School Work

- Advising, consulting about, directly instructing, or listening to the student describe anything related to completing actual course work and/or focusing on specific assignments such as: study strategies (e.g., reviewing notes, making flashcards/study guides); editing papers; brainstorming ideas for papers, projects, etc.; or reviewing exams

### Social Skills

- Advising, consulting about, directly instructing, or listening to the student describe social skills, such as: planning events in which students can attend in order to socialize; practicing socialization in session (e.g., role plays); pointing out socially inappropriate behaviors; or discussing social norms (e.g., eye contact)

### Off-Task

- Discussion about irrelevant issues

### Other

- Anything that does not fall into one of the above categories

*Figure 2.* Operational definitions for activities tracked in consultation sessions.

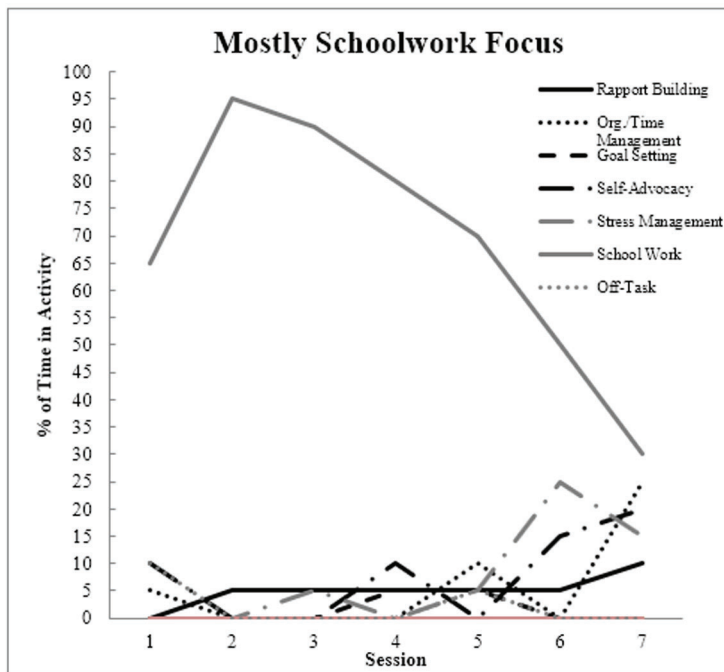


Figure 3. Focus of sessions primarily on school work.

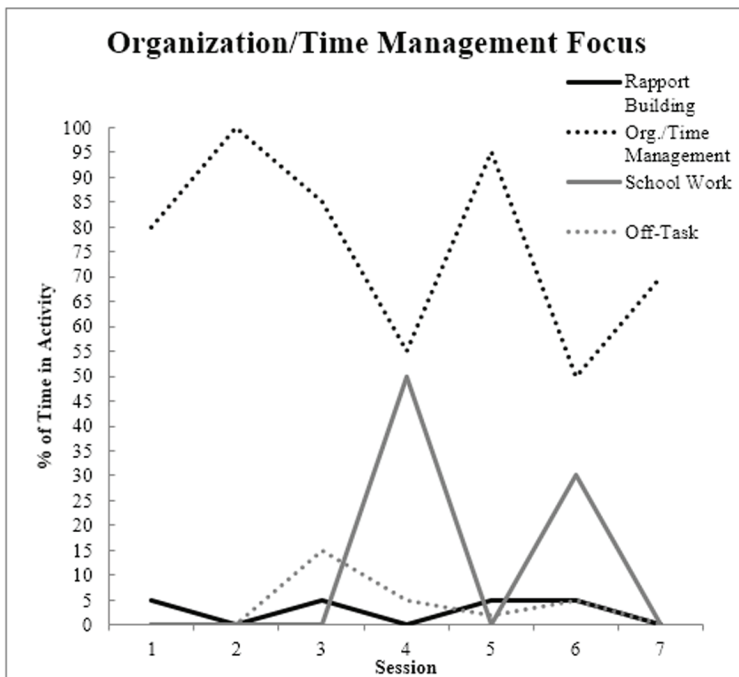


Figure 4. Focus of sessions primarily on organization and time management.

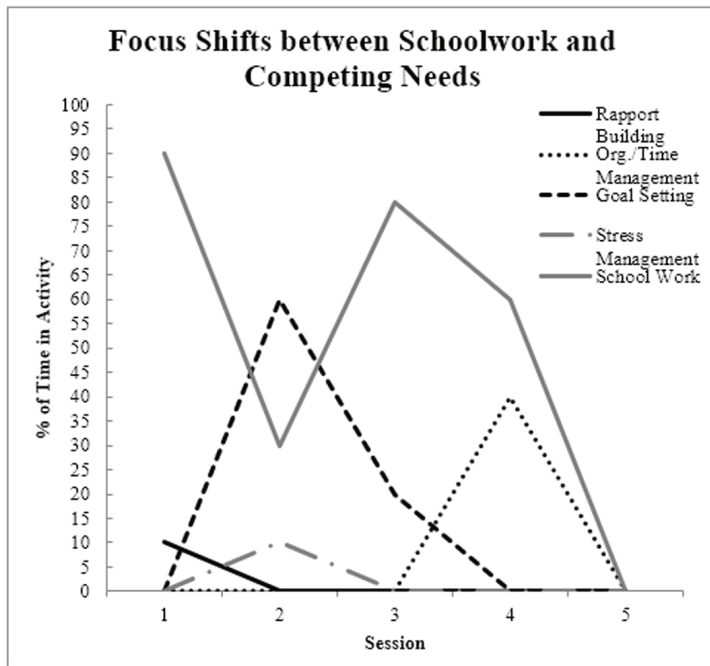


Figure 5. Focus of sessions shifted between school work and competing needs.

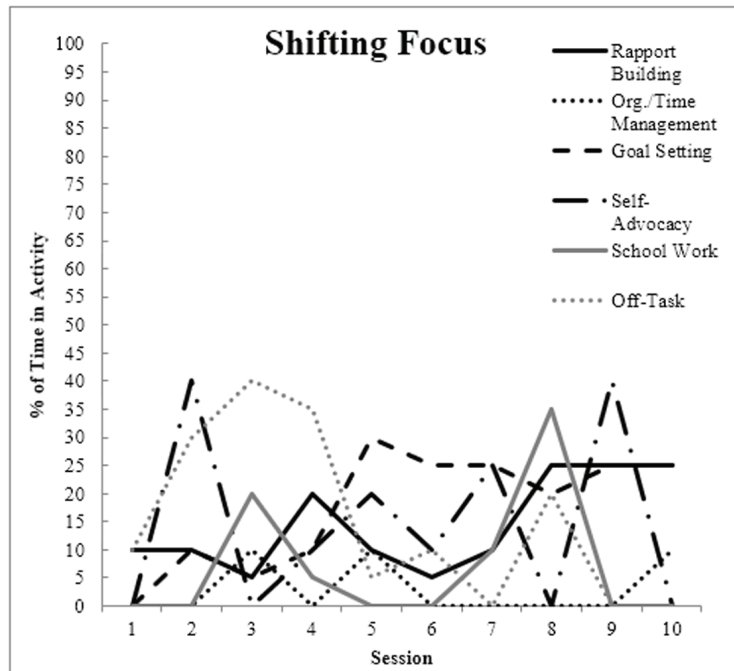


Figure 6. Focus of sessions shifted among several different activities.



# Expanding Disability Awareness in Undergraduate Education Through an Online Course (Practice Brief)

Carlyn Mueller<sup>1</sup>  
Cap Peck<sup>1</sup>

## Abstract

This paper describes an online undergraduate course that explores ways the arts can help students develop a clearer understanding of how perceptions about (dis)ability affect their lives, and the lives of others. The course engages a variety of questions through web-mediated and arts-based activities, including: What is disability? How does schooling affect our understanding of ourselves and others? After analysis of course material, findings suggest that course outcomes, including measures of work quality and course evaluations, were both intellectually substantive and personally meaningful in both delivery modes. Student comments also suggest that many experienced the online format as a “safe space” in which to explore disability more critically. The data show that the online instructional format of the course has allowed for a dramatic expansion of the number of students who are exposed to perspectives about (dis)ability, education, and the arts, which they often characterize as transformative.

*Keywords: disability, higher education, art pedagogy, online education*

(dis)Ability is a concept saturated with stereotype, contention, and paradox. In fact, the cultural meanings assigned to variation in human characteristics such as mobility, intelligence or creativity may be viewed as a rich example of what Foucault (1982) has termed “dividing practices”—social and institutional processes of categorization and subjugation that operate through both external and internal (self-directed) processes. In response to these issues, an undergraduate course inquiring about the nature of (dis)ability and the related processes of disablement that operate in U.S. culture was developed. Using the arts as both an intellectual and aesthetic resource, the goal of the course has been to expand students’ understanding of (dis)ability as a social construct, and to increase their awareness of the ways the processes of disablement are mediated by the policies and practices of social institutions—particularly the schools.

Policy, research, and practice in higher education has addressed issues of disability and disablement in higher education in terms of legally required accommodations (Hadley, 2007; Konur, 2006), faculty attitudes towards those accommodations (Rao, 2004), and universal design for instruction (Burgstahler,

2013; Silver, Bourke, & Strehorn, 2006). While often the result of hard-won legislative action that ensures students’ rights, access, and equitable participation in higher education, this way of seeing disability is still narrowly focused on disability as primarily an individual problem that exists inside of particular bodies and minds and that must be accommodated via legal, policy, and curricular measures). Meanwhile, there has been an expanded attention and commitment to issues of diversity in higher education (Hurtado, Milem, Clayton-Pedersen, & Allen, 1998). While this commitment to diversity has been critiqued as intentionally oblique, and not actually addressing the root causes of issues like racial divides on campus (Iverson, 2007), disability issues continue to be relegated to legal services and academic support offices rather than mentioned in discussion alongside other aspects of student identity, however complex.

## Depiction of the Problem

In this paper, the value and importance of expanding our view of disability is explored, and the processes of disablement are understood as cultural-

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ly-constructed experiences (Barnes & Mercer, 2001) in which we all participate in one way or another. A practical and important part of this conversation in higher education concerns how issues of disability and ableism might be included in discussions of diversity for students who have not encountered or been exposed to these issues before in their educational careers. In part because of the lack of widespread awareness (outside of the disability community) of disability as a unique identity marker, there is a lack of curriculum that helps undergraduate students understand disability issues on anything other than a medical or rehabilitative level. Thus, if undergraduate students do encounter disability they are taught that it is a problem to be solved, rather than a social group to be understood and allied with. This is the central problem of our paper and of the course: how can disability be moved from an “issue” to be addressed by teaching practices and accommodations, toward understanding the construct of disability as a source of learning about our culture and ourselves?

In order to engage these issues in a critical way, pedagogical strategies for the course have been guided in large part by John Dewey’s ([1934], 2005) insights about the unique nature and functions of “art as experience.”

The poetic as distinct from the prosaic, esthetic art as distinct from scientific, expression as distinct from statement, does something different from leading to an experience. It constitutes one. (p. 88)

Dewey’s insights about the unique and constitutive function of aesthetic experience were used as a guiding principle in designing curriculum which induces students to “have an experience” with (dis)ability, art and art-making. This was a significant pedagogical choice and practice for this course because of the specific kinds of “experiences” students needed to undertake in order to begin to question their deeply held, and culturally guided, ideas about disability. Ware (2002) terms this process “reviving consciousness” and notes that, in her work specifically with teachers who are given the opportunity to question their own assumptions of disability, they experience “a recovery of the self and of consciousness relative to understanding disability in schools and society as both a constituency and a concept” (p. 156). In the context of the course, this “reviving consciousness” relative to disability, education, and art includes drawing on the expressions of artists themselves (particularly artists with physical, social, or cognitive impairments) as powerful resources for expanding our students’ awareness of the many faces of disability as personal experience (Ware, 2002). This also in-

volves asking students to explore and reflect on their own experiences with the arts, focusing in particular on how people come to make statements like “I am not an artist” or “I can’t dance (draw, sing, write)”. This aspect of the course is developed through asking students to engage in a variety of art-making activities—including dance, visual art, poetry, and other modes of creative expression. Students almost always express some degree (and often an acute degree) of anxiety and discomfort about these assignments. This anxiety provides a very personal context in which students begin to critically explore the cultural and historical sources of their views of themselves as “non-artists” (Sarason, 1990). These almost invariably have to do with their experiences in school and with the same social forces that separate those who “can” from those who “can’t.”

Using these experiences and the questions that arise from them as context, the last third of the course takes up questions about schooling and education. One of the goals for this part of the course is to help students make connections between the overt processes of devaluation and disablement that routinely function to marginalize and oppress people with physical, sensory or cognitive impairments, and the cultural ideologies and institutional practices of ableism that have shaped students’ own educational experiences, and their understanding of themselves (Derby, 2016). Students consider both the kinds of disabling practices that they remember so very well from their own school experiences, as well as contrasting examples of educational programs and practices which promote and support creative inquiry and expression as a valued dimension of learning (e.g., Gallas, 1994; Paley, 1995; Robinson, 2001).

This paper describes the (dis)Ability, Education and the Arts (DEA) course, and evaluates its outcomes to date. There are three research questions to orient analysis of course outcomes. First: “*What* are students learning?,” including the extent to which students’ expanded their prior understandings of (dis)ability as a social construct, and the extent to which they began to identify the pervasive impacts of cultural and institutional ableism/normativity in their own educational experiences and in their lives. A second general research question was “*How* are students learning?” This research question relates to Dewey’s ideas about the unique functions of art as experience, and the ways in which use of the arts as pedagogical resources impacted students. Finally, student ratings and comments from face- to-face (f2f) and asynchronous online course delivery modes are compared, including comments on the differences and similarities related to these models of course delivery.

## **Participant Demographics**

The DEA course was offered at a large research-intensive university located in the western United States. At this institution undergraduate students in all departments and in all major courses of study were required to complete one course in “diversity” and one course in “visual, literary, and performing arts” as part of the university’s general education requirements. The DEA course allowed students to complete either or both of these requirements. In addition, DEA was offered for elective credit within the University undergraduate major in Early Childhood and Family Studies. The ability to complete multiple general education requirements, and the flexibility of the course’s online context, may have made this course a popular choice over others offered in the same quarter. It is now the most highly enrolled course in the College of Education at this university, despite there being no advertising or additional recruitment for the course. To support the course and its development, there is a teaching team including one faculty member in the College of Education, three doctoral students in education, and an “Artist in Residence” who has in the past been an MFA student recruited from networks in the Dance department and who contributes to the art pedagogy of the course. Depending on enrollment, the course is taught by the faculty member or a graduate student, with up to three additional graders (including the Artist in Residence) serving as support.

Outcomes for 294 undergraduate students enrolled in DEA over three quarters were evaluated for this study. Enrollments each quarter varied considerably, with a substantial increase in student enrollment over time. The face-to-face version of the course (Spring 2015) enrolled 49 students, while the online course enrolled an average of 125 students per quarter. About one third of the students enrolled were from the university’s College of Education; the remaining two thirds of students came from academic departments across campus representing a wide variety of disciplines in the natural sciences, social sciences, humanities, and professional schools. Students also represent all years and stages of their undergraduate careers, from first year to seniors.

## **Description of Practice**

Disability, Education and the Arts is structured as a one quarter course taught in 10 individual “modules”. It begins with disability and social model-focused modules and progresses into exploring more theoretical and experiential relationships between disability, education, and art. Some themes of the

modules include: the social and medical construction of disability; the social process of disablement; art, disability, and social change; and (re)visioning education: (un)learning disability. Students are required to progress through each of the 10 modules consecutively in order to complete the course, though they can complete individual tasks (readings, watching media) at any point within the timeline for each module. The course culminates in a final project that asks students to represent their learning over the course of the quarter through a “learning exhibit” of student-produced art and related commentary.

While each module has its own theme and focus, readings and media, the course utilizes a specific learning process to unify each module and structure the course more generally. The learning process has four consecutive but interrelated parts, which we have termed “Encounter,” “Explore,” “Interact,” and “Reflect.” Figure 1 depicts the learning process model.

Encounter activities are those that are traditionally thought of as “professor assigned” materials- course readings, documentaries, other media/videos, or mini (approximately 15 minute) videotaped lectures. Encounter activities provide a comment “text” for the course, and often ask students to engage in active reflection on their own thinking, previous assumptions, or biases in the context of a particular Encounter activity they share. Encounters push students to explore the connections between disability, education, and art with guidance and scaffolding, but students are also encouraged and accountable for connecting these Encounter experiences to their personal history in school, their feelings around disablement and disability, and/or their history of engagement with the arts and art-making. A wide range of disabilities were represented in the Encounter readings and media, including physical, intellectual, and learning disabilities. Students are then asked to extend the Encounter experiences assigned to them through “Exploration” of activities and resources they elect. Explorations in the course served an important function, both in broadening students’ thinking and making connections between ideas they engaged during Encounter activities and in affording students some choices within the learning process for each module. Explore options included attending arts- and disability-related events on campus or in the community, such as lectures or art exhibits and performances. Students were also encouraged to volunteer with local organizations that offered art, dance, or poetry classes to youth and adults with and without disabilities. If community or in-person experiences were challenging for students to attend, students were also able to undertake Explore experiences online, through taped poetry slams,

TED Talks, documentaries, art making tutorials, and resources focusing on particular artists with disabilities. Again, as in the Encounter materials, effort was made to vary the disability experiences students could learn from and to expand ideas about disability from purely physical or visible into a wide spectrum of lived experience.

Students were given opportunities through the Interact portion of the learning process to share their thoughts and experiences related to the module and learn from each other. In small online discussion groups, students shared art projects, discussed readings and related media, and commented on art, poetry, or other aesthetic responses shared by their peers.

Finally, after encountering new ideas, exploring outside resources, and interacting with others about their ideas, students completed each module with a reflective process we called the Documentation of Weekly Learning (DWL). The DWL had four parts. These included analysis and commentary on each Encounter activity (often using excerpts or analysis of a particular reading or media experience), a description of the individual student's chosen Exploration activities, and a commentary on what they had learned through participation in the Interact discussion board. In the last section of the DWL, students were asked to make connections between their Encounter, Explore, and Interact experiences, and summarize their learning for the week. This reflective exercise was designed to prompt students to notice shifts in their own thinking both within each of the ten modules, and over the length of the course.

### **Evaluation of Observed Outcomes**

This analysis utilizes what Creswell and Plano Clark (2011) have termed a "convergent mixed methods" approach to evaluate course outcome evidence related to our research questions. This mixed method approach afforded an opportunity to compare course outcomes for f2f and online delivery systems using a common (quantitative) survey measure, while also affording the opportunity for discovering thematic patterns in student experiences and outcomes through analysis of several qualitative data sources.

Several sources of quantitative and qualitative data were used to evaluate course processes and outcomes:

- End of course evaluation surveys. A standard university course evaluation questionnaire was used to measure general student perceptions about the value and effectiveness of both the content and pedagogy of the course. This

measure included a variety of Likert-scaled items, as well as a set of open-ended questions that solicited student comments about the course.

- DWL submissions. Each week students were required to submit a "Documentation of Weekly Learning" narrative, in which they were asked to describe and evaluate what they had learned that week through Encounter, Explore, and Interact phases of the weekly learning cycle. DWL responses ranged considerably in length--the average response was 2-3 pages.
- Discussion posts. Student contributions to weekly online group discussions were reviewed, and excerpts relevant to the research questions were identified and included in the analysis.
- Final Projects. Students completed a final "Learning Exhibit" consisting of a set of five images with accompanying commentary describing how each image related to something they had learned in the course about of (dis)ability, education, and the arts.

The qualitative data analysis process involved selecting 5 student "cases" at random for in-depth analysis. Each case involved compiling available narrative data, along with artifacts from student creative work completed during the course. Then, each case's data was read, using low inference codes to identify text and artifacts that appeared to be relevant to the research questions about student learning. A thematic analysis of coded data segments was completed for each case independently. Emerging themes about what and how students learned were compared across cases, and a set of cross-case themes were identified for further comparative analysis. Using these cross-case themes, the primary data set was reexamined and compiled into a table summarizing data related to each theme for each of the five student cases. The results of this cross case thematic analysis are presented later in the paper.

The qualitative data analysis included the post-course evaluation surveys, involving Likert-scaled scores for each of five key questions appearing on the student course evaluation surveys to compare outcomes for each quarter in which the course was offered. The questions asked students to evaluate the course in terms of overall course quality and quality of the content, using a five-point Likert scale. The intellectual challenge, effort required, and level of engagement students experienced in the course were evaluated using a seven-point scale. An analysis



of what and how students learned produced several themes, described below.

### **What Did Students Learn?**

Themes related to what students learned were titled Expanded Views of Disability, Expanded Views of Education, Expanded Views of Self, and Expanded Views of Art and Art-Making.

**Expanded views of disability.** Perhaps the most robust theme found in students writing about their experiences in the course had to do with their expanded views of “disability”. One student expressed the change in her views this way:

I learned some of the ways of how our understanding of disability is defined and shaped. At first, before I started taking this course, I think I had built some assumptions and stereotypes of defining disability. However, learning more about the ways of how it's constructed and created allowed me to change my view completely.

Another student expressed this kind of expanded view in a final project artwork he entitled “Multi-Faceted Man” (Figure 2). Accompanying the image, the student described his learning:

The diverse and contradictory experiences of Multi-Faceted Man mirror my experiences this quarter where I saw artistic representations of disability that ran the gamut of human experience: struggle, and pain, and suffering; hardship and handicap; loneliness and isolation; anger, sadness, and grief. But also joy, and laughter, and happiness; freedom, and adventure, and triumph; hope, intimacy, and love. This has changed my understanding of the very definition of disability.”

**Expanded views of education.** Another way in which students described changes in their thinking and learning over the course was through their expanded views of education, both as a system and through reflecting on their own schooling experiences. Often, students drew connections between art as pedagogy and ways that the education system should, in their minds, be better supportive of creative expression:

After reading [Eisner's] personal essays, I realized art is more deeply involved in education than I initially thought, and it is required for the education system to engage in developing a curriculum that truly values artistic activity as one of the major subjects. If education system values these vital as-

pects of art, students will have a more supportive environment to engage in artistic activities.

Other students reflected on their own experiences with art and education:

In this class I learned about the “factory model of education,” and I remembered an art class that I took in high school. The end product of the class resembled that of a factory assembly line. A row of 30 papier-mâché masks.

A few students engaged education issues with both disability and art in mind:

When I think of this in terms of “ability” or “disability” – I can't help but wonder how many children on that continuum have never been properly supported in finding and pursuing their own passions and capabilities.

**Expanded views of self.** One of the ways that students shifted their thinking and learning over the course was through the way they saw themselves. Many students expanded views of themselves through doing art assignments throughout the course modules, including recording a dance video and creating a self-portrait with their non-dominant hand. This often resulted in reflections from students that challenged some of the existing rules and ways they had seen people doing art:

In the end I learned that I can find my own way to make art, rather than doing it “by the book.” I initially envisioned doing the assignment by myself. But I realized, “You know what? That's not me.” And I got a lot more value out doing expressing myself the way I wanted. Not the way that I thought society or whoever wanted me to.

Some students compared their ideas about themselves when they were younger to their current ideas about who they are as undergraduates:

I also thought to myself, if I was given the opportunity when I was young, I think I would be able to be more creative and be less afraid of portraying my own expressions and creativity. When I think about myself right now, I think I fear being different and making mistake. However, I have come to realize that making mistakes and encountering new experiences are also a way to personal growth.

One student noticed shifts between the way he introduced himself to peers at the beginning of the quarter, to how he engaged a dance assignment towards the end of the quarter:

In my introductory video, I did not directly take a video of myself but edited several photos. However, by uploading dancing video to share with my group members and to post my opinions on the discussion board where all of the students who take this course can read my thoughts, my identity expanded, and I became more confident expressing my thoughts to others.

**Expanded views of art and art-making.** Many student comments reported an expanded understanding of function and value of art in their own lives. Others discovered broader interpretations aligned with Dewey's notion of art as experience:

From watching the ritual dance video it is more clear to me that art is not just a physical thing that you see sitting behind a pane of glass in a museum or in some funky studio used for an art show. Art can be about the experience one is having while creating art; it can be about the experience itself, and how it is displayed.

This expanded understanding of art and art-making was both a personal realization as well as a way of thinking about schools and schooling. By reflecting on their experiences with art, many students also were able to reinterpret places and spaces in their schooling lives where they felt empowered or disempowered in their creativity as students, including experiences which had lasting impacts about the way they saw themselves as undergraduate students as well.

### **How Did Students Learn?**

The themes related to how students learned were conceptualized as First Person Narratives, Art Experiences, Taking Risks, and Using Readings as Tools.

**First person narratives.** Most of the students who take the course do not have a foundational knowledge or awareness of disability issues. Often, students in the course have no friends or family members with disabilities, and the course is the first time that students hear people with disabilities discussing their identities and experiences. First person narratives, then, became extremely important learning tools for students towards thinking specifically about disability in new ways:

Another video I watched was the interview with

[interview participant]. It made me think about the true definition of what a disability is. When she mentioned that she was disabled, I was having a hard time believing her. I have a preconceived definition that being disabled means you are in a wheelchair or you have a type of learning impairment, but as she stated, everyone has their own take on defining disabilities. I choose this excerpt because of her view on how disability is a political category. She says how a lot of different groups have certain interests in defining disability.

Other students recognized the difference in the learning they experienced from textbooks and first-person narratives:

First of all, after watching the documentary, I was so thankful that the first opportunity of meeting these people is within this documentary, not in any textbook or media resources.

**Taking risks.** Because of the requirements of the course often asked students to post their ideas, critiques, and art creations publicly for others to see, a degree of risk-taking was fundamental to the course itself. Many students noted that these experiences were important to their learning, both about themselves and with regard to the themes of the course:

I am my own harshest [critic]. It was enlightening to see that other people had very similar experiences to my own that informed them that they can't do something. It made me feel like I don't need to be so critical of my own ability. And it made me more mindful of being critical about other people's ability. My motivation for making this image was to take a risk. I am not visually artistic. I "can't draw." I am 30 years old, and I haven't attempted something so artistic since elementary school when I first learned that some kids were artistic - and other kids weren't. So I decided to cap my learning exhibit by confronting my ability or lack thereof. And I am quite pleased with the result.

**Using readings as tools.** While most courses require some reading or textual analysis of foundational ideas, this course encouraged students to link different parts of the learning process to the ideas of the readings to aid in learning and reflection. This process of using readings as tools to inform other learning materials in the course became important for many students, who made connections between what they read and their main takeaways from each mod-

ule. Often, these connections were personal:

From the reading “Worldview, Intelligence, and Psychological Tests,” I learned a new way of defining intelligence. I came to understand that intelligence is something that can’t be defined by only the results, but through the process. Before reading this article, I thought of intelligence as knowing more information, having more knowledge and skills, however, I was wrong. As I think about my own experience, I think I thought about myself as not being intelligent when I immigrated to the U.S. and had to learn the new language and culture. Especially at the school, I felt leftbehind and thought I wasn’t learning as fast as others.

Some readings helped students recontextualize their ideas about art and art making:

After reading this chapter, I found out that artistic activity is not only drawing the object on the paper or canvas. I realized that the word “art” or “creativity” includes broader meaning than I initially thought. I also wanted to appreciate diverse forms of art that I can easily find in my daily life.

Other readings made students question their previously held knowledge about disability:

The very fact that the topic of the reading from this author was hard to describe and irritating to me, made me think more critically of myself. If I am so quick to get irritated over a very lengthy description of a feeling until I have to explain it myself, does that too, mean that I am part of the problem of quick judgments and misunderstanding of those who are “different?” Yes. This was a hard view for me to wrap my mind around because of my background with Autism.

**Art experiences.** Students identified art experiences, either those required as an Encounter in a module or those personally chosen as an Explore activity, to be important for their learning both about the themes of the course and with regard to their own identity and self-concept. They noted a shift in their appreciation for art and a sense of their own development as artists, especially those who started the course believing they were not capable of artistic activity. One student noted: “I cannot say I am a dancer yet, but I am starting to become an artist who enjoys the value of dance movement and tries to stretch out more from my comfort zones like my group members.” Other students, through experimenting with

art making, refined their sense of what “perfect” art meant:

Knowing that art doesn’t necessarily have to be perfect encouraged me to do some work of my own. I am the type of person that will refrain from doing something if I know it won’t turn out how I like it. I was so impressed with the imprinting encounter, that I explored it further, and was amazed at the results. I never thought to do art that way. It expanded my notion of what artists can create and do.

Other students reflected on the universality of art and art making as a part of who we are as people, regardless of impairments, disabilities, or social messages about “good art”:

Will other people see what I saw in my mind, when I click the button to capture this moment? But I decided to just go with it and collect these images as an ode to the simple and accessible beauty that surrounded us. And I became intensely aware that I really do believe that beauty is in the eye of the beholder. And I really do believe that artistic behavior or making special is universal and is something all people can and do share in.

### **Course Delivery Mode**

Course evaluations were used to compare the first quarter of the course, which was taught in person, with outcomes for two subsequent quarters of the course taught in a completely online format. Two of the evaluation questions included in the comparison were rated on a five-point Likert scale, with five as the highest rating representing “Excellent.” Findings for these questions are presented in Figure 3. Results of these quantitative course evaluations showed high ratings for the course overall as delivered in both online and f2f modes. Students also reported high levels of intellectual challenge, effort, and involvement with the course relative to other courses they had taken. In general, the end of the course evaluation data suggests that students had a positive and challenging learning experience in the course, and that this experience was not substantively different across online or face-to-face formats.

### **Implications and Portability**

The students in this study provided rich description and accompanying reflections on their learning in the course, and on the specific experiences they had with (dis)ability, art, and art-making. Student

learning over the course was summarized in four major themes: expanded views of disability, expanded views of education, expanded views of self, and expanded views of art and art making. Students identified shifts in their thinking and learning across these themes to be due to a variety of pedagogical strategies, including first person narratives, art experiences, taking risks and using readings as tools. Course evaluation data were collected for both online and face-to-face formats, allowing comparison of overall student satisfaction and engagement with the course. Findings from these course evaluation data suggest that in both formats, students had very positive experiences in the course and were highly engaged; in fact, students rated the course either as positively or more positively in its online format as they did the face-to-face version.

Interestingly, students in the initial (face-to-face) iteration of this course almost unanimously suggested keeping the course as is instead of moving it online. Despite the presumptions of the first “cohort” of students, the data suggest that students in subsequent online versions of the course also had as powerful, if not more powerful, learning experiences as when the course was taught face-to-face. This is important to consider in the context of the course goals, theoretical framework, and overall positioning in a larger context of diversity courses and education. In an online format, students can be asked to be conscious and reflective of the ways that their ideas are changing, and are given the space to do this reflection built into the course. Students can also be honest, both with themselves, their peers, and their instructors, about the knowledge that they have around disability issues.

For many students, disability was a new and somewhat taboo topic: most students’ only relationship to disability was through the elementary school classmate who came in for inclusive gym class, or maybe a relative whose limitations their family seldom discussed openly. In the context of the course, these experiences (or lack of experience) were reframed as opportunities for the students to think critically about their experiences and perceptions about disability. Why is it, for example, that most students without disabilities had little to no relationship with people with disabilities or interaction with them in their daily lives? Why were their only associations with disability centered on separation or of difference? What do these course experiences help them see about how disability is constructed, in schools and in society more generally, as a “dividing practice?” Asking students to consider these issues, to be honest about their prior beliefs and perceptions, and to be open to shifts in their learning during the course

actually appeared in many cases to be facilitated by the online format, where they often commented on experiencing a measure of safety and security through anonymity that helped them undergo shifts in their internal thinking, attitudes, and beliefs.

Experiences with the arts offered a valuable and energizing resource for the learning process, and appeared to offer a personal perspective on the lived experience of people with disabilities in ways that changed students’ views of disability as a construct. For students who come into the course with little awareness or knowledge of disability issues (as was the case for the vast majority of the students who enrolled), using the arts as a tool for learning and critical thinking proved powerful and, according to comments from many students, quite transformative.

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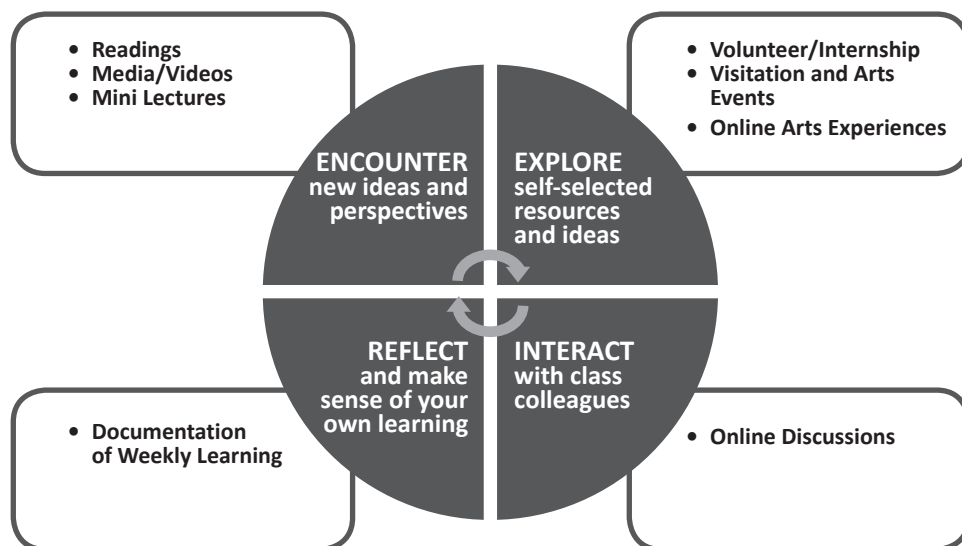


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### About the Authors

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*Figure 1.* Learning Process



*Figure 2.* Multi-Faceted Man

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- Provide a separate cover letter asking that the manuscript be reviewed for publication consideration and stating that it has not been published or is being reviewed for publication elsewhere.
- Manuscripts should be double-spaced and range in length between 25 and 35 pages including all figures, tables, and references. Exceptions may be made depending upon topic and content but, generally, a manuscript's total length should not exceed 35 pages.
- Write sentences using active voice.
- Authors should use terminology that emphasizes the individual first and the disability second (see pages 71 - 76 of APA Manual). Authors should also avoid the use of sexist language and the generic masculine pronoun.
- Manuscripts should have a title page that provides the names and affiliations of all authors

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- **Participant Demographics and Institutional Partners/Resources:** Maintain the anonymity of the students, colleagues, and campus(es) discussed in the article but provide a clear demographic description of participants (e.g., number of students, disability type, gender, race and/or ethnicity whenever possible, age range if relevant) and the types of offices or agencies that were collaborative partners (if relevant).
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- **Evaluation of observed outcomes:** Whenever possible, summarize formative or summative data you have collected to evaluate the efficacy of your practice/program. This can be anecdotal, qualitative, and/or quantitative data. Support any claims or conclusions you state (e.g., “Our program greatly enhanced students’ ability to self-advocate during their transition to college”) with objective facts and/or behavioral observations to support these claims.
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