Inclusive Instructional Practices Used and Their Perceived Importance by Instructors

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Abstract

This research examines the inclusive instructional and accommodative strategies instructors use to assist students with disabilities in their classes, and what faculty perceives as most important for student success. The survey included demographic questions (gender, role in the college, and experience) and response items from the Inclusive Teaching Strategies Inventory ([ITSI] Lombardi, Murray, & Gerdes, 2011). The ITSI is a self-report survey that asks participants about their attitudes towards inclusive teaching strategies, as well as how they act on these strategies. Responses were collected from 52 instructors in the College of Education at a large university in the Pacific Northwest. Respondents included a mixture of tenure-track faculty, adjunct faculty, and course instructors. Findings from the analysis suggest differences between instructors' attitudes and actions in two areas: (1) Scholastic Accommodations to assignment due dates and individual reading loads, and (2) Physical Accommodations, such as examining the classroom in advance to anticipate physical barriers for students with disabilities. Findings also suggest that instructors lacked confidence in their knowledge of Universal Design for Learning, legal definitions of disability, the Americans with Disabilities Act, and Section 504 compliance. The implications of these findings for instructor professional development and student self-advocacy are presented.

Keywords: Postsecondary education, disability, universal design for learning, inclusive practices

The percent of students with disabilities entering institutions of higher education has steadily grown over the past few decades (Newman, Wagner, Cameto, Knokey, & Shaver, 2010). This growth has generated considerable interest in research on accessibility of higher education for students with disabilities. Eleven percent of undergraduates in both 2007-2008 and 2011-2012 reported having a disability (National Center for Education Statistics [NCES], 2015). In 2011-2012, some 44% of undergraduates with disabilities were male and 56% were female, about the same percentages as for undergraduates without disabilities. However, not all students who have been identified with a disability disclose their disability upon entering the university.

One study, requested by the Office of Special Education and Rehabilitative Services (OSERS) in the U.S. Department of Education, collected information from postsecondary institutions in the United States on the enrollment of students with disabilities, services and accommodations provided, documentation accepted as verification of a disability, educational and accessibility materials and activities provided, and universal design (Raue & Lewis, 2011). This report provides national data collected from degree-granting postsecondary institutions about students with disabilities, the services and accommodations provided to these students, and various aspects of institutional accessibility. The estimates presented in the report are based on a survey of two-year and four-year degree-granting postsecondary institutions conducted during the 2009-2010 academic year. A large percentage of institutions that enrolled students with disabilities during the 12-month 2008-2009 academic year reported enrolling students with specific learning disabilities (86%), Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD) (79%), mobility limitations or orthopedic impairments (76%), or mental illness/psychological or psychiatric conditions (76%). Among institutions that enrolled students with disabilities during the 2008-2009 academic year 93% provided additional

exam time as an accommodation to students with disabilities. Large percentages of institutions also provided classroom note takers (77%), faculty-provided written course notes or assignments (72%), help with learning strategies or study skills (72%), alternative exam formats (71%), and adaptive equipment and technology (70%).

Although the data demonstrate a steady increase of students with disabilities enrolled in two-year and four-year colleges, it has been found that faculty often have limited knowledge regarding the laws associated with serving students with disabilities in higher education (i.e., ADA and Section 504 mandates), the services offered at their university, and effective teaching strategies for use with students with disabilities (Leyser & Greenberger, 2008). The National Center for Education Statistics (2009) identified that only 62% of postsecondary institutions provided instructors with handbooks designed to assist them in working with learners with disabilities, and only 64% of those institutions provided instructors with information and resources to increase their knowledge of working with learners with disabilities in higher education.

Students with disabilities in postsecondary education need faculty support. The National Council on Disability ([NCD], 2003) identified a lack of support from faculty one of the primary challenges for students with disabilities in postsecondary education. Access to appropriate support and accommodations as well as the presence of positive attitudes among faculty are directly related to the success and retention of learners with disabilities in a postsecondary environment (Rao, 2004; Stodden, Jones, & Chang, 2002). Faculty have more challenges than ever to plan, implement, and assess instruction for a greater number of students who require accommodations (Lombardi, Murray, & Dallas, 2013). Faculty may not have the knowledge to provide appropriate support or accommodations.

Universal Design

To address the increasing student diversity, many have argued for the application of a Universal Design (UD) framework. UD is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Connell, et al., 1997, About UDL section, para.1). When individuals apply UD principles, their products and environments meet the needs of potential users with a variety of character-

istics. Disability is just one of many characteristics that an individual might possess. The use of UD in postsecondary settings has been supported by legislation including the Reauthorization of the Higher Education Opportunity Act, 2008, where UD is referred to 18 times (Roberts, Park, Brown & Cook, 2011). UD is written into the Higher Education Opportunity Act where it is described as a "scientifically valid framework for guiding educational practice" (SEC. 762 [G], SEC. 103 [C]). It is applied to educational contexts through two major frameworks, sometimes in combination: universal design of instruction and universal design for learning.

Universal design of instruction (UDI). UDI is a framework for applying UD to learning environments with a goal towards greater accessibility. The goal of UDI is to maximize learning with a wide range of characteristics by applying UD principles to all aspects of instruction (e.g., delivery methods, physical spaces, information resources, technology, personal interactions, and assessments). The nine UDI principles include strategies for instruction that focus on broad commitments and beliefs that underlie planning and delivery of instruction. These principles include a commitment to instruction as being useful and accessible to all learners, with a tolerance and anticipation of variance in individual student learning, and an instructional climate that is welcoming and inclusive (Scott, McGuire & Shaw, 2001).

Universal design for learning (UDL). UDL focuses primarily on three "categories" of instructional practices that, similarly to UDI, shape instruction and classroom design. UDL calls for the integration of presenting multiple means of representation, engagement, and expression into course curriculum (CAST, 2011; National Center on Universal Design for Learning, 2014). Providing multiple means of engagement requires instructional strategies that develop self-regulation, persistence and self-sustained effort, and individual choice and autonomy. Engagement instructional strategies, which target the "why" of learning, might include student self-assessments, mastery-oriented feedback, or a focus on relevance and value of subject matter to students. Meanwhile, providing multiple means of representation focuses attention on the "what" of learning: the options students are provided for comprehension, language and mathematical expressions, and perception of information. Instructionally, this includes clarification on vocabulary, syntax and structure, alternatives for auditory and visual information, and attention towards maximizing transfer and

generalization. Finally, multiple means of action and expression is directed towards the "how" of learning, and targets executive functioning, physical action, and options for expression of knowledge. These strategies include supporting planning and strategy development, using multiple media for communication, and varying methods for student response.

While UDI and UDL have slightly different frameworks for understanding issues related to UD's application in the classroom, they share a commitment to anticipating, planning for, and embracing diversity of student needs. As UDI is most frequently applied to higher education instructional settings, the term is used in this paper to signify a combined framework of both UDL and UDI principles.

Several institutes of higher education (IHE) have designed various models and types of professional development for faculty to increase their knowledge of both UDL and UDI. For example, the University of Hawaii - Teaching All Students Reaching All Learners Professional Development Training Program - includes the topics of: UDL, assistive technology (AT), hidden disabilities, and rights and responsibilities. This program was designed to support postsecondary faculty and staff by providing information on ways to improve postsecondary education outcomes for all students, including those with disabilities (see http://www.ist.hawaii.edu/). Another example comes from The Ohio State University where staff developed the Faculty and Administrator Modules in Higher Education (FAME), an online self-paced series of modules that could be utilized by faculty, staff, or teaching assistants (Izzo, Murray & Novak, 2008). The content was designed around effective teaching and learning practices and includes an introduction to UDI as well as modules investigating the "rights and responsibilities in the accommodations process" and "web accessibility" (p. 65). San Francisco State University (SFSU) has also developed online modules and web resources to facilitate instructor knowledge of UDI. The University of Northern Colorado's "Universal Design for Learning: Presuming Competence by Design" tutorial offers individualized and differentiated trainings based on instructor knowledge level (Moore, 2007). Finally, the DO-IT program at the University of Washington houses case studies, PowerPoint presentations, and promising practices literature geared specifically towards faculty in its "Faculty Room" online resource (Burghstaler, 2015).

Some IHEs have made an effort to offer (mostly online) resources to faculty related to training and knowledge building about UDI, full implementation at the university level is not widespread. Several barriers, cited by institutions as hindering implementation of UD related to disability to a moderate or major extent, include limited staff resources to provide faculty and staff training on accessibility issues (52%), costs associated with purchasing appropriate technology (46%), and other institutional priorities (45%) (Raue & Lewis, 2011). Instead, institutions reported what could be thought of as more of a "reactive" approach to implementing UD principles and supporting students with disabilities: the majority of institutions (92%) reported providing one-on-one discussions to support faculty and staff in working with students with disabilities, as requested. Additionally, three quarters of institutions reported distributing materials "designed to encourage students with disabilities to identify themselves to the institution" (p. 4). These policies and procedures, considered together, put the onus on both the individual faculty member and student to reach out before they receive training, assistance, or accommodations. Students with disabilities, then, are required to almost immediately become strong self-advocates in brand new educational contexts in order to receive the necessary accommodations and supports they need. Faculty must also be self-advocates and take the initiative to connect with disability resources personnel, and obtain resources or assistance for their courses. Faculty may find themselves in a scenario where they need to obtain training but do not have the time or have limited resources to access.

Measuring Instructor Attitudes and Actions Toward UDI in a College of Education

The purpose of this study was to determine the accommodative strategies that faculty have used and those they believe are important for inclusive instruction including accommodations for students with documented disabilities in their university classes. This research examined the accommodations and inclusive instructional strategies faculty have used in their university classes and of these, what they perceive as being most important in helping students with disabilities be successful in their classes. Examining what instructors identify as being used and most important will help to inform the university. As a result, meaningful, supportive resources can be developed and shared with instructors generally and in the College of Education (COE) to help students with disabilities be successful in their classes.

Our research was guided by several questions:

- What practices and accommodative strategies are being used by instructors and which ones do they perceive as being important in helping students with disabilities be successful in their classes?
- How confident are faculty in their knowledge of ADA, 504, and universal design?

Method

Context

Instructors taught within a COE at a four-year public research university located in the Pacific Northwest. Across all undergraduate and graduate programs, the COE has 33 students who have disclosed disabilities out of a total enrollment in the college of 1,514, or approximately three percent of the total population of students in the College (B. Callahan, personal communication, July 30, 2015). The authors believe that the number of students with disabilities is much higher but data do not reflect it as some students have not disclosed their disability. Participants were chosen from the COE given recent discussions amongst faculty and students related to a potential lack of knowledge regarding how to effectively support students with disabilities. The authors found these discussions troubling given the emphasis on UDL/UDI principles in public school settings, where many instructors worked in a variety of capacities.

The university localizes all services for all undergraduate and graduate students into one office on campus, Disability Resources for Students (DRS), which manages 1,619 individual student cases university-wide to provide a range of services including both classroom accommodations and campus access. Common accommodations for COE students coordinated through DRS comprise two major categories: alternative testing and "general classroom setting." Alternative testing accommodations include extra time on assessments, reduced distraction environments, and utilizing a computer for short answer and essay questions. "General classroom setting" accommodations include: copies of PowerPoints and displayed materials, extra time on timed in-class assignments, permission to audio record lectures, note-taking assistance, disability related absence authorization, and accessible textbooks, course packs, and articles (B. Callahan, personal communication, February 2,

2015). Other less commonly requested accommodations coordinated by DRS for students in the College include interpreters, classroom relocation (into accessible rooms and campus buildings), accessible campus shuttle transportation, and accessible parking.

Existing Training within the COE

There is no required ADA training for instructors at the University or within the COE. DRS personnel often provide basic or advanced trainings on ADA to individual departments and faculty on a case by case basis, and an online training is in development (B. Callahan, personal communication, July 30, 2015). DRS partners with the University's Center for Teaching and Learning to provide information about disability accommodations during a summer training for fellows and research and teaching assistants.

At the University and within the COE, faculty are informed about their responsibilities to students who have disclosed their disabilities primarily through one document, referred to as the "DRS Faculty Notification Letter." Each College within the University is assigned a DRS counselor, who serves as a direct contact for faculty, staff, and students related to accommodations. At the beginning of each quarter, as directed and scheduled by students, counselors meet individually with students in order to discuss potential accommodations and needs for that academic period. Following this meeting, called an Access Planning Meeting, the student is approved for particular accommodations and notified of those accommodations electronically. The student, using a website managed by DRS, has the responsibility to select classes in which they would like to use their accommodations. When a student selects a particular set of accommodations for a course, a *Faculty Notification Letter* is generated and distributed via email to the instructor of the course. This letter provides the instructor with information related to accommodations a student enrolled in their course may need which may impact instruction, classroom structure, or scheduling. Students are also encouraged to individually contact instructors to notify them of any accommodations that might be relevant to the course, or to discuss specific details that may be important for implementing those accommodations.

DRS has created an additional resource as a source of information for faculty, the "Flyer for Faculty," which is designed to address issues of access, equity, and inclusion for both students and faculty with disabilities. The flyer notes six major responsi-

bilities of faculty in providing academic accommodations. Those responsibilities include providing the accommodations identified in the *Faculty Notification Letter*, contacting DRS for questions or concerns related to making accommodations for students or to refer students, ensuring instructional materials are accessible, and confidentiality is maintained. Two additional responsibilities of faculty noted on the flyer and relevant to the discussion of UDI are that faculty "should not lower course expectations or fundamentally alter the nature of the course at the request of the student with a disability," and that best practices in teaching are implemented to reach "a diversity of learners" (University of Washington, 2015, Faculty responsibilities section, para. 5).

Measure

The online survey included items from the Inclusive Teaching Strategies Inventory (ITSI) (Lombardi, Murray, & Gerdes, 2011). The ITSI has undergone multiple development phases and validation studies (Lombardi & Murray, 2011; Lombardi et al., 2011). An international cross validation study, comparing the U.S. and Spain, using exploratory and confirmatory factor analysis led to the development of a seven-factor structure (Lombardi & Sala-Bars, 2013). For our study purposes and research questions, the authors chose to use the prior format where items were divided across two dimensions and six subscales. This survey has 34 items related to inclusive instructional strategies, accommodations, and disability laws and concepts. There are also general items related to campus resources. The first dimension, Attitude, asks respondents to use a one-four Likert scale to rate how highly they value a specific practice using the stem "I believe that it is important to…" The second dimension, Action, uses a one-four Likert scale to ask the respondents how strongly they enact those same practices using the stem "I do…" A final six-item sequence asks more specific questions about respondents' knowledge of their specific disability laws. As a whole, these items provide a rich window into the beliefs, practices, and knowledge of higher education faculty.

The ITSI has established validity and reliability (Lombardi & Murray, 2011, Lombardi, et al., 2011). Lombardi and Murray (2011) indicated that the ITSI "can be used as tool for assessing university faculty attitudes and perceptions of disabilities" (p. 52) and can be used to focus professional development activities on areas of importance to faculty (Lombardi & Murray, 2011; Lombardi et al., 2011).

Participants

Researchers sent the ITSI survey to 200 members of the COE who directly serve graduate and undergraduate students, including tenure-track faculty (52% of respondents), teaching associates (17%), research professors (6%), teaching assistants (10%), lecturers, and adjunct faculty. Of those included in the frame, 52 (26%) responded over a three-week period. Forty-three (83%) of the respondents were female and nine (17%) were male, which generally reflected the gender dynamics of the COE. In terms of years in higher education teaching, 31% of respondents reported less than five years of experience, 29% reported five to ten years, and 40% reported more than 10 years. Further demographic data was unavailable due to concerns about anonymity.

Data Analysis Procedures

Following from Lombardi et al. (2011), the researchers ran a statistical analysis of the descriptive statistics of each subscale in the ITSI instrument, followed by an analysis of the subscale-level responses. This two-stage analysis provides an aggregated view of all responses to all of the "Attitudes-Action" scale items in the ITSI, followed by a closer examination of the underlying trends. Table 2 presents the mean (M), standard deviation (SD), and Chronbach's Alpha (A) of each subscale. The left three columns indicate the statistics related to participants Attitudes towards the subscale items, and the right columns indicate their self-reported answers related to their own Actions, as described in Lombardi et al. (2011).

Arraying the statistics in this format allowed researchers to identify the large scale trends in respondent data, and helped to guide further investigation at the item level. The following sections provide a brief summary of findings that may be inferred from the data in Table 2.

Results

Findings at the Subscale Level

Low means in accommodations. The Accommodations subscale had the lowest overall means in both Attitudes (3.17) and Actions (3.13). This indicates a low level of agreement on the importance of this construct. However, these low means are likely attributable to divergent interpretations of two key items discussed in the next section.

High standard deviations in multiple means of presentation and accommodations. Two of the sub-

scales–Multiple Means of Presentation and Accommodations–showed more variance in their responses, as illustrated by the higher Standard Deviation values in their aggregated Attitudes and Beliefs scores. The researchers believe that the high degree of variance in the scores relate to two or three controversial items in the subscales that created some disagreement amongst respondents. This is viewed as an instrument error, and has been reported to the researchers who composed the ITSI survey.

Effect Sizes of Cronbach's Alpha Between Attitudes and Actions

To provide a comparison of the consistency of users responses to the items in each scale and across the Attitude/Action items, Liu and Weng (2009) proposed using a simple effect size calculation that is similar to Cohen's D. The Liu and Weng D calculation is designed to compare the effect sizes of two Cronbach's Alpha calculations that have the same number of items and respondents, as is the case in the ITSI. In Table 3, Cronbach's Alpha is presented for each subscale's Attitude/Action component, followed by a calculation of the effect sizes using the modified Cohen's D. A negative number indicates a stronger orientation towards Attitudes over Actions, with a positive indicating a stronger orientation towards taking those Actions. In essence, the Cohen's D effect size is used as a proxy for the gap between the respondents' strength of belief in the importance each construct in the scale and their self-reported beliefs about their own activity in that subscale.

In the aggregate, respondents demonstrated a strong orientation towards Action on Inclusive Lecture Strategies (d=.21) and Accessible Course Materials (d=.20). Conversely, in the aggregate, respondents were more inclined to believe in the importance of Multiple Means of Presentation (d=-.19), Accommodations (d=-.14), and Inclusive Assessment (d=-.40) than they were to report that they have enacted those beliefs in their teaching. The gaps represented by these results indicate that faculty could use further development in these areas to improve their capacity to put their values into action.

Findings at the Item Level

In order to provide a deeper view of the responses, researchers used the subscale findings above to identify specific items that may account for the observed values in Table 3. The researchers drilled down to the item levels to look for the underlying causes of the shifts in means, standard deviations, and alphas presented earlier. At the item level, researchers selected findings from the Accommodations subscale, the Campus Resources subscale, and examined items from questions specific to disability law and policy knowledge.

Mixed reactions to accommodations for extra credit and reduced reading load. When asked whether they believe that it is important to allow students with a documented disability to complete extra credit assignments, researchers found that a majority of respondents were open to this option. However, 43% of participants indicate that they believe that it is 'unimportant' or 'very unimportant' to alter their reading load for students with a documented disability. These are very similar to the responses to the 'I do' form of the item (Chi-Square: p<.001, df=9).

Similarly, researchers observed that some faculty did not consider it important to change the overall course-reading load for a student with a documented disability even if they would not do so for other students (64% affirmative, 36% negative). Respondents gave similar responses when asked the Actions form of the question (Chi-Square: p<.001, df=9).

The similarity of the responses in Accommodations to extra credit and reading load may indicate that instructors and faculty are under the impression that changing reading load or completing extra credit responses may compromise the intellectual rigor of their course, or that such accommodations might increase their teaching workload. However, training or partnerships with University staff may provide them with insight into how to improve their capacity to accommodate student disabilities in these two areas without compromising the perceived integrity of their teaching.

Checking for physical barriers. When asked if they believed that it was important to survey their classroom for physical barriers for students, 86% of respondents agreed or strongly agreed. However, when researchers asked whether they currently look for physical barriers in their classrooms, only 64% agreed. Chi-square analysis (p<.001, df=9) of the item verifies that 22% of respondents responded with a lower response on the Actions version of the question compared with the Attitudes version of the question. This is an example of a clear gap between some respondents' Attitudes and Actions, indicating that training or a reminder to check for classroom barriers could have a beneficial effect on closing the gap.

Confidence in Disability Laws and Policies: Knowledge and Practice

In addition to the ITSI's six constructs, the survey contains six questions related to the respondents' confidence related to two aspects of disability. Four of the questions relate directly to knowledge of aspects of disability law (including the ADA act, Section 504, Universal Design for Learning, and the legal definitions of disability) and two relate to the respondents' understanding of their own role and knowledge in enacting these laws. Table 4 illustrates their overall responses to the items.

In their aggregate form, the responses above indicate an unusual pattern: Respondents as a whole were very confident in their responsibilities (82% responded yes) and knowledge (72% responded yes) related to disability laws. Yet a substantial number of respondents in at least two categories (ADA law: 47%; Section 504 law: 58%) did not report feeling confident in their knowledge of these laws. This presents a quandary: How can respondents simultaneously have confidence in their ability to serve students if they do not understand the laws and policies that guide this service?

Researchers posited that there were deeper underlying relationships in these responses. To determine whether there is a relationship between respondents' confidence in their knowledge of disability law constructs (ADA/504/UDL/Legal Definitions) and the sense of their responsibilities and knowledge in making accommodations for their students (Items 2 and 3 in this cluster), researchers conducted a cross-tabulation of these responses in SPSS using a Chi-Square test on the responses for each question. Due to the binary nature of the response (Yes-No) and small sample size, the researchers used Fisher's Exact (one-sided) computation to determine the statistical relationships between each individual's set of responses to the knowledge question and their self-perceptions of their understanding of their responsibilities as faculty. Table 5 displays the p-values for each Chi-Square test, where the first column displays the significance of the tests internal consistency between Item 2 (confidence in responsibilities to students) and each of the four legal-knowledge constructs. The second column indicates the results for Item 3 (confidence in knowledge to make adequate accommodations) and each of the legal constructs.

The Chi-Square values indicate significant relationships exist between individuals' responses to their confidence in their responsibilities to students, their confidence in their knowledge of making accommodations for students, and their confidence in their knowledge of the laws themselves (except in the case of Section 504 and Responsibilities). Surveyed respondents who were confident in their knowledge of the policies were significantly more likely to be confident in their roles and responsibilities. This may be evidence of the importance of a respondent's general knowledge of disability policies and laws which may promote a greater sense of confidence in their responsibilities and their perceptions of their own knowledge.

Discussion

The data provides a picture of what inclusive instructional strategies and accommodations faculty within a College of Education use to assist students in their classes and what they perceive as most important. The strong relationships between knowledge of specific disability laws, a sense of confidence in one's responsibilities to students, and one's confidence in their knowledge indicates that some exposure to disability training may improve instructors' willingness to provide these crucial services to students. This data provides tentative evidence for the proposition that instructors and faculty who learn about these laws may better understand why they exist, and are more likely to value the practices and responsibilities that come with supporting students with disabilities. An immediate benefit to the participants is that the ITSI contains items that identify specific accommodations and inclusive instructional strategies (Lombardi et al., 2011). By reading and responding to these items, participants may have identified accommodative and inclusive instructional methods that are new and/or of interest to them.

Researchers had the opportunity to present these findings at two events. First, we presented the findings at a brown-bag session for DRS and the Disability Studies program at the University, where feedback was solicited. Most attendees identified as a student with a disability and others identified as instructors. Feedback on results was obtained with students identifying the need to separate the terms and content related to UDL and accommodations. This feedback supports a distinction between accommodations mandated by law for students with disabilities accessing postsecondary education, which were hard won by disability activists (for example, extra time on exams), and the kinds of strategies that can be imple-

mented in classrooms (for example, multiple means of representation) that benefit all students regardless of disability. While students felt that UDL was an important and valid set of strategies that would benefit their educational experiences in significant ways, they also felt the need to emphasize the importance of legally regulated requirements for postsecondary institutions that include a grievance process.

Students also supported the need to provide training at a departmental level and identify advisors that could serve as a liaison to DRS within each academic unit.

Second, the first author informally presented findings to a group of high-school students with disabilities who were attending a summer program at the University. These students discussed the shift from high-school, where support is readily provided, to a postsecondary context where they needed to have strong self-advocacy skills. Conversation centered on the use of role-play to facilitate advocacy skills as they practice how to talk with instructors about accommodations. One individual stated "I didn't realize that I may be the one that has to educate the instructor about my disability and what I need to be successful."

These results have implications for disability services providers as our findings suggest practical strategies for the development of resources, instructor professional development and student self-advocacy which may assist to eliminate institutional barriers. First, providers must develop a positive, collaborative relationship with instructors where they are made aware of available resources and supports. This can be as simple as disseminating a brochure detailing points of contact on campus. The development of a DRS resource library to provide clear, updated information for faculty as well as students could also be beneficial. Second, technology can be utilized, such as online modules or video, to provide training in critical content areas. Third, disability service providers can promote self-advocacy by assisting students with disabilities to understand the nature of their disabilities, their rights, and their accommodation needs. Students shift from a secondary setting where they are automatically provided with supports and services to a higher-education context where they have to self-advocate and discuss their needs with faculty at the beginning of each new term. Disability service personnel can assist by providing information on the differences between high-school and postsecondary settings. Further, providers can serve to mediate the

transition as they can provide information related to what services are available and can actively teach students with disabilities to self-advocate. These activities may assist students to become more comfortable with and confident in asking for the supports available to help them succeed. Further, use of role-play or coaching may be beneficial as students can practice how to describe their disability to faculty and can work to clearly identify what types of accommodations they will need.

There are several important limitations to consider in this study. First, this study's findings are most likely strongly indicative of attitudes and behaviors in the sampled faculty of the COE. Second, Lombardi et al. (2011) have shown that more detailed demographics can illustrate much finer relationships between educators and their scores on the ITSI. We did not collect department or subject area information due to concerns about identifying respondents based on their submission. Third, we believe this sample represents a best-case scenario. One of the authors is a faculty member within Special Education and, given the topic and affiliation, special education faculty may have increased participation. Faculty within a special education program are known to value and enact inclusive practices, as these ways of teaching are a part of their disciplinary knowledge. In addition, educators most likely have had some exposure to UDL/UDI in public school settings. Last, a Likert Scale might have yielded more precise results regarding the difference between faculty's confidence in their responsibilities versus their understanding of the laws. "Yes" and "no" questions did not provide the faculty with much opportunity to express their perceived level of knowledge in these areas. Future iterations of this study will grow to include research that can act as a comparison, in order to isolate underlying variables that affect faculty attitudes and behaviors.

Ultimately, the results of this study will be used to inform faculty and can have an impact at the student level as faculty provide appropriate accommodations. Resources will be developed or found that can be made accessible to faculty if they need more information about disabilities, an accommodation, or instructional practice. Similar studies can be conducted at other universities which can include their university faculty in determining what their participants perceive to be important regarding accommodations and inclusive instructional practices. This may help to inform their faculty and provide discussion about supporting the increasing number of stu-

dents with disabilities. As demonstrated in this paper, a deeper understanding of disability knowledge will lead to faculty showing a greater confidence in their responsibilities to students. Researchers may wish to more carefully index the kinds of knowledge and perceptions of disability that are held by faculty, and identify the kinds of content, pedagogy, and modalities that will engage faculty in this important work. This study examined only the scores from the COE, where knowledge of accessibility is part of the disciplinary knowledge. Future research should examine broader sources of input, such as faculty from colleges of Business, Engineering, and Medicine. Researchers believe that faculty in these colleges, where disability knowledge is not necessarily part of the discipline, may hold very different beliefs about their roles in maintaining accessible learning environments for all students.

Development of a more extensive research base on the use of UDI in postsecondary educational settings, which moves beyond initial concerns regarding definition and theory to intervention research that examines the impact of UDI on objective measures of student outcomes is needed.

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Table 1

Survey Demographics (N=52)

Item		N (%)
Gender		
	Female	43 (83%)
	Male	9 (17%)
Role		
	Faculty (Adjunct to Full Professor)	36 (69%)
	Teaching Assistants	5 (10%)
	Other	11 (20%)
Years Teaching		
	Less than 5 years	16 (31%)
	5 to 10 years	15 (29%)
	More than 10 years	21 (40%)

Table 2

Attitudes and Actions Toward Subscales

Subscale	Attitudes Toward Subscale			Actions Toward Subscale		
	Mean	*SD*	*α*	*Mean*	*SD*	*α*
Multiple Means of Presentation	3.39	2.67	.61	3.52	2.31	.48
Inclusive Lecture Strategies	3.60	1.42	.53	3.58	1.6	.67
Accommodations	3.17	2.97	.71	3.13	2.93	.64
Campus Resources	3.64	1.47	.56	3.46	1.96	.59
Inclusive Assessment	3.48	1.89	.71	3.45	1.63	.44
Accessible Course Materials	3.84	1.36	.71	3.67	1.97	.79

Table 3

Effect Size of Attitude-Action Gap by Subscale

Subscale	α (Attitudes)	α (Actions)	Cohen's D
Multiple Means of Presentation	.61	.48	-.19
Inclusive Lecture Strategies	.53	.67	.21
Accommodations	.71	.64	-.14
Campus Resources	.56	.59	.04
Inclusive Assessment	.71	.44	-.40
Accessible Course Materials	.71	.79	.20

Table 4

Confidence in Knowledge and Responsibilities Related to Disability

"I am confident in…"	Total Responses	"Yes" Response	"No" Response
My understanding of the Americans with Disabilities Act	51 (98%)	27 (53%)	24 (47%)
My responsibilities as an instructor to provide or facilitate disability related accommodations	51 (98%)	42 (82%)	9 (18%)
My knowledge to make adequate accommodations for students with disabilities in my courses	50 (96%)	36 (72%)	14 (28%)
My understanding of Section 504 of the Rehabilitation Act of 1973	50 (96%)	21 (42%)	29 (58%)
My understanding of Universal Design	51 (98%)	29 (57%)	22 (43%)
My understanding of the legal definition of disability	51 (98%)	30 (59%)	21 (41%)

Table 5

Chi-Square significance (Fisher's Exact One-Sided) of Consistency of Responses

	Item 2: Responsibilities (p)	Item 3: Knowledge (p)
Item 1: ADA	.01*	.04*
Item 4: 504	.17	.05*
Item 5: UDL	.03*	.05*
Item 6: Definition	.00*	.00*