5-1-2012

ATTITUDES OF TEACHING FACULTY TOWARD INCLUSIVE TEACHING STRATEGIES AT A MIDWESTERN UNIVERSITY

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A Dissertation
Submitted in Partial Fulfillment for the
Doctor of Philosophy in Rehabilitation Degree

Rehabilitation Institute
in the Graduate School
Southern Illinois University Carbondale
May, 2012

DISSERTATION APPROVAL

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A Dissertation Submitted in Partial

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Doctor of Philosophy

in the field of Rehabilitation

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March 28, 2012

AN ABSTRACT OF THE DISSERTATION OF

BRYAN KEITH DALLAS, for the Doctor of Philosophy degree in REHABILITATION, presented on MARCH 28, 2012 at Southern Illinois University Carbondale.

TITLE: ATTITUDES OF TEACHING FACULTY TOWARD INCLUSIVE TEACHING STRATEGIES AT A MIDWESTERN UNIVERSITY

MAJOR PROFESSOR: Tom Upton, Ph.D.

This study measured postsecondary faculty attitudes toward academic accommodations and an inclusive teaching method called Universal Design for Instruction (UDI). The purpose of the study was to help determine a readiness for change among faculty with regard to implementing UDI principles, compare differences between faculty groups, as well as add to the postsecondary UDI research agenda. UDI requires faculty instructional design and has the potential to reduce the need for individualized academic accommodations and increase the retention and graduation rates of students with disabilities. The study included an online survey e-mailed to 1,621 faculty at Southern Illinois University Carbondale (SIUC).

Independent variables included: amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of prior disability-related training. Results showed significant differences among faculty based upon amount of teaching experience, prior disability-related training, and academic discipline. Generally, faculty with more teaching experience and prior disability-related training had more favorable attitudes toward accommodations and UDI concepts. Faculty in the colleges of Applied Sciences and Arts (ASA), Education, and Mass Communication and Media Arts had more favorable attitudes toward multiple means of presentation than the colleges of Science and Liberal Arts. Faculty in the college of Education had more favorable attitudes toward providing accommodations than the college of ASA.

The study effectively started a dialogue with SIUC faculty on their willingness to use UDI principles. Overall, faculty reported mostly positive attitudes toward UDI concepts and traditional academic accommodations. Results could be utilized when proceeding with targeted training for faculty on UDI in postsecondary settings.

Keywords: universal design, universal design for instruction, faculty attitudes, academic accommodations, students with disabilities

ACKNOWLEDGEMENTS

I have many people to thank for helping me in the dissertation process and encouraging me to get to this point in my academic and professional career. First, special thanks to my committee chair Dr. Upton. For over 10 years, I have enjoyed working with and learning from you. Thank you for your time and support over the years and for always challenging me to move forward in the field of rehabilitation. I am also extremely grateful to my dissertation committee members: Dr. Boyer, Dr. Crimando, Dr.Mundschenk, and Dr. Robertson for your time and constructive feedback that made my work so much better. I truly appreciate your willingness to serve on this committee and helping me in this process. Dr. Crimando, Dr. Robertson, and Dr. Upton, your courses and guidance have made me a better professional and helped me develop critical thinking and writing skills that were essential for completing this dissertation.

I must thank Kathleen Plesko, Rita VanPelt and the rest of the Disability Support Services employees (past and present) for the constant support you have given me over the years. Thanks to the staff in the EPSY stats lab for your time and statistical expertise. Thanks to my mom, JoAn Dallas, and the rest of my family for your support and prayers. This includes: Lucille Dallas, Kelly, Patrick, Joel, Bob and Jean Wise, Jill, Paul, all their spouses and my nieces and nephews. Special thanks to my wife's family: Tom, Annette, and Jessica Heil and extended family.

I dedicate this dissertation to my wife, Tiffany Dallas. Thank you for supporting me throughout this process. Your encouragement every day was instrumental in helping me to complete this dissertation and degree. You are the greatest part of my life and I love you. I also dedicate this dissertation to my late father, Ron Dallas. He dedicated most of his teaching career

to students with disabilities and was always in pursuit of more knowledge. I am grateful and blessed to serve this population as he did.

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CHAPTER 1

INTRODUCTION

A potentially effective method of ensuring students with disabilities have more efficient access and better chances to succeed in postsecondary educational settings may be due to the utilization of Universal Design for Instruction (UDI). UDI is an instructional concept that utilizes postsecondary institutional stakeholders, namely faculty, to create inclusive courses that go beyond mandated academic accommodations. UDI has been associated with students with disabilities, however, postsecondary faculty and institutions that utilize the principles of UDI provide diverse learning environments that benefit all students. Currently, most postsecondary institutions in the United States do not utilize the principles of UDI for a variety of reasons. One main reason, through no fault of their own, is that many postsecondary administrators and faculty lack the training, knowledge, skills and resources necessary to create universally inclusive learning environments (Raue & Lewis, 2011).

Block, Loewen, and Kroeger (2006) stressed that to incorporate UDI into higher education requires institutional commitment and a viewpoint change from a medical model of disability to a social model. Not only would incorporating UDI in higher education benefit every student, it would decrease the need for retrofitting college courses in the form of academic accommodations for students with disabilities. Unemployment rates for people with disabilities continue to remain higher compared to people without disabilities: the unemployment rate for people with disabilities rose from 16.4 percent to 16.8 percent between July 2010 and July 2011, while the rate lowered for those without disabilities (U.S. Department of Labor, 2011a). UDI has the potential to increase retention and graduation rates, which in turn will increase chances of

employment and more earning power for students with disabilities (Cook, Rumrill, & Tankersley, 2009; Dowrick, Anderson, Heyer, & Acosta, 2005; "Task Force," 2000).

Presently, postsecondary institutions in the U.S. are legally mandated to provide, on an individual basis, academic accommodations for "qualified" students with disabilities who make requests. Examples of academic accommodations may include extended time on exams, audio books, and human note takers, among others. The most often requested accommodations include testing accommodations, note taking, counseling and advocacy (Tagayana, Stodden, Chang, Zelenik, & Whelly, 2005). Students must self-identify themselves to disability support professionals (DSP) on campus and request accommodations. This is often a time consuming process that may begin after a course has started (Scott, McGuire, & Shaw, 2003b). McGuire and Scott (2006) argued for a shift from legally mandated accommodations to full inclusion through the use of UDI. Using the principles of UDI, the need for retrofitted academic accommodations would be less likely because the pre-planning for the course would take into consideration the learning styles and needs of all students.

Definition of Universal Design for Instruction

This section will delineate what is meant by Universal Design (UD) and Universal Design for Instruction (UDI). UDI principles are taken directly from the principles of UD. Research has focused on UDI along with two other inclusive teaching models for higher education purposes. Additional models include Universal Design for Learning (UDL) and Universal Instructional Design (UID). Some researchers use these terms interchangeably, while others distinguish between them as separate models related to UD (Koch, Hennessey, Ingram, Rumrill, & Roessler, 2006; McGuire & Scott, 2006; Roberts, Park, Brown, & Cook, 2011). Although there are descriptive differences between UDI, UDL and UID, they are all based on the

principles of UD and all are focused on accessible teaching and learning (Zeff, 2007). A unifying definition of these three prominent models could be described as applying UD principles to the instructional environment (Roberts el al., 2011). Other inclusive models exist such as Universal Design for Education (UDE) and Universal Design for Assessment (UDA) (Bowe, 2000; Thompson, Johnstone, & Thurlow, 2002). Although the subtle differences in these terms will be briefly reviewed, for consistency and lack of confusion, the term Universal Design for Instruction (UDI) will be used in this study.

Universal Design

UDI is based directly on the principles of Universal Design (UD), which originally focused on making buildings and other structures physically accessible (Zeff, 2007). UD began in the 1950s when countries wanted to remove physical barriers to buildings that prevented access to people with physical disabilities (Roberts et al., 2011). The idea of UD picked up further steam in the 1960s and 1970s with the passage of laws such as the Architectural Barriers Act of 1968 and Section 504 of the Rehabilitation Act of 1973. The Americans with Disabilities Act (ADA) of 1990 expanded the concept of UD to public as well as private facilities (Roberts et al.). The acceptance of UD in architecture grew out of three societal forces: (a) an increase in the number of people surviving and living with disabilities, (b) federal legislation responding to this growing population, and (c) innovations in engineering and technology including the birth of assistive technology (Story, Mueller, & Mace, 1998; Zeff, 2007).

One of the pioneers of the UD movement was the late Ron Mace. He was an architect with a physical disability who designed structures to be accessible for all. Mace coined the term, “Universal Design” and in 1989 established the Center for Universal Design at North Carolina State University. The Center for Universal Design defines UD as, “the idea that all new

environments and products, to the greatest extent possible, should be usable by everyone regardless of their age, ability, or circumstance" ("Center for Universal Design," 2010, para. 1). Through Mace's work, seven principles of UD were published on creating accessible buildings and environments that benefitted not only people with disabilities, but all people ("Center for Universal Design," 2011). A premier example was the implementation of curb cuts. Not only did curb cuts on sidewalks allow people in wheelchairs to be more mobile, it worked for all people utilizing objects with wheels (e.g., baby strollers, bicycles) (Zeff, 2007).

The concept of UD has been used widely in different areas and is reflected in legislation. UD is defined in the Assistive Technology Act of 2004 as, "a concept or philosophy for designing and delivering products and services that are usable by people with the widest possible range of functional capabilities, which include products and services that are directly accessible (without requiring assistive technologies) and products and services that are interoperable with assistive technologies" (29 U.S.C. § 3002, p. 1714). The concept of UD has been transitioned to higher education settings as well. However, specific challenges exist in implementing UD in higher education compared to the success that has been observed in the field of architecture.

Universal Design for Instruction (UDI)

In the late 1990s researchers started suggesting how to implement UD in higher education. One of the first methods was termed Universal Instructional Design (UID) and was designed to become part of instructional methodologies and minimize the need for secondary support systems (e.g., academic accommodations, DSP) (Silver, Bourke, & Strehorn, 1998). Using UID, access to every aspect of a course would be taken into consideration before classes start, proactively limiting the need for individual academic accommodations (Silver et al., 1998). The Council for Exceptional Children (as cited in Ouellet, 2004, p. 136) described UID as

designing instructional methods and materials that allow a diverse population to achieve learning goals.

Scott, McGuire, and Shaw (2001) from the University of Connecticut (UConn), published nine principles of Universal Design for Instruction (UDI) (Scott, Loewen, Funckes, & Kroger, 2003). They adapted the existing, architecturally based, seven principles of UD from the Center for Universal Design and added two additional principles that were specific to inclusive learning environments. UDI has been described as a framework faculty may use to plan and deliver inclusive instruction as well as assess learning outcomes (McGuire & Scott, 2006). The nine principles are (a) Equitable Use, (b) Flexibility in Use, (c), Simple and Intuitive, (d) Perceptible Information, (e) Tolerance for Error, (f) Low Physical Effort, (g) Size and Space for Approach and Use (h) a Community of Learners, and (i) Instructional Climate (see Appendix D). The developers of UDI intended for the principles to allow faculty to review their teaching approach and refine their strategies and methods by way of recognizing the needs of diverse learners (McGuire & Scott, 2006).

Whereas nine principles comprise UDI, the developers of Universal Design for Learning (UDL) suggested three broad principles that include (a) Multiple Means of Representation, (b) Multiple Means of Expression, and (c) Multiple Means of Engagement. These principles generally suggest that faculty provide more variety in how information is presented and more choice for students to demonstrate they have learned and can apply course information. The principles of UDL were developed by the technology focused Center for Applied Special Technology (CAST). CAST was created in 1984 with a mission to provide learning opportunities for everyone through research and the use of innovative educational technology ("Center for Applied Special Technology," 2011; Zeff, 2007). Examples of UDL features may include

multiple testing formats, assigned reading material available in multiple formats (e.g., audio, print), combinations of in-class and online discussions, various learning tools (e.g., captioned videos, guest speakers) or allowing students more choices for assignments (e.g., group projects, field-based study). UDL is defined in the Higher Education Opportunity Act of 2008 as,

> a scientifically valid framework for guiding educational practice that (A) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and (B) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient. (Higher Education Opportunity Act, 20 U.S.C. § 1003, p. 3008)

Descriptive differences exist between UDI, UDL and UID, however all are based upon the original seven principles of UD with an added focus on the instructional environment (Roberts et al., 2011). Just as societal forces helped UD in architecture, Zeff (2007) argued that societal forces are at work to help UDI gain further acceptance in higher education. Reasons for potential success include the following: (a) an increasingly diverse student population, (b) the ever expanding use of technology in education, and (c) pressure from political and accrediting groups pushing for more access and outcome assessments.

While UDI principles are available as a blueprint to help higher education institutions become fully inclusive, institutions that adopt them are currently the exception and not the rule. One of the reasons UD in architecture was so successful is because it was widely mandated by federal civil rights laws in the 1960s – 1990s. This is not yet the case with UDI in higher education. Current laws require students with disabilities in postsecondary settings to self-

identify and request individually based academic accommodations. Accommodations are then implemented with the assistance of DSP on college campuses. Often, this is a time consuming process in which all accommodations may not be in place as quickly as they should be. If UDI were widely adopted, DSP could transition from providing individual accommodations to providing consultation to faculty as they develop more inclusive learning environments (Harrison, 2006; Scott et al., 2003)

Postsecondary Disability Legislation

Postsecondary academic accommodations are mandated by the American with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973. However, no laws exist that require UDI to be widely incorporated into postsecondary settings. Section 504 of the Rehabilitation Act of 1973 and Title II of the ADA delineate accessibility requirements for higher education in the U.S. Together these laws prohibit postsecondary institutions from discriminating against students with disabilities and require equal access to programs and services. The Rehabilitation Act prohibits discrimination against people with disabilities by institutions receiving federal funds. Section 504 states:

> No otherwise qualified individual with a disability in the United States, as defined in section 706 (20) of this title, shall, solely by reason of his or her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance or under any program or activity conducted by any Executive agency (Rehabilitation Act, 29 U.S.C. § 794, para. 1).

The ADA broadened the scope of what the Rehabilitation Act already covered and extended anti-discrimination laws to local and state governments, private businesses, and public services (Ketterlin-Geller & Johnstone, 2006). Title II states the following:

> No qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any public entity (American with Disabilities Act, 42 U.S.C. § 12132).

These laws prohibit discrimination based upon disability and require that reasonable accommodations be put in place that allow access to otherwise inaccessible learning environments. Reasonable accommodations are considered changes in the postsecondary environment (e.g., classroom, tests, services) that do not place an undue administrative or cost burden on the institution (Ketterlin-Geller & Johnstone, 2006). Faculty or academic departments can also challenge an accommodation request if they believe the request fundamentally alters the intent of the program offered (e.g., altering test subscale) (Sharp & Earle, 2000; Wilhelm, 2003). Whereas Section 504 required institutions receiving federal funds to provide access, Title II broadened the scope to include all entities that the general public utilizes.

Postsecondary stakeholders have the responsibility to make sure disability legislation is followed and accessibility provided. Students with disabilities must self-identify, provide appropriate documentation, and request accommodations through DSP on campus (Gil, 2007). Students must also be willing to self-advocate and talk with their instructors after they have established services with DSP. DSP, along with the support of the institution, are responsible for ensuring requested accommodations are in place as long as the accommodations do not alter the essential program or course requirements (Gil, 2007). DSP often work with faculty to ensure

accommodations are in place after they have been requested. Faculty help in providing accommodations but DSP have the responsibility of ensuring appropriate adjustments are made.

The ADA and Rehabilitation Act established a protocol in higher education where students must be deemed eligible based upon disability and then approach their instructors to request academic accommodations. This protocol is being challenged by proponents of UDI and an emphasis on inclusive learning environments is being encouraged where the need to self-identify as having a disability is lessened (Ketterlin-Geller & Johnstone, 2006). Some researchers argue that having students with disabilities ask their instructors for accommodations may be detrimental to student performance in higher education. Bierwert (in Ketterlin-Geller & Johnstone, 2006) reported that some students with disabilities experience anxiety when talking to faculty about their disability and accommodations. Often students delay asking for accommodations until they have fallen behind in a class and others do not ask to avoid possible social stigmas especially among classmates (e.g., in-class note takers) (Ketterlin-Geller, 2006).

Reasonably, UDI concepts are starting to appear in higher education laws. The Higher Education Opportunity Act of 2008, requires that institutions receiving federal teacher quality partnership grants to report Universal Design for Learning (UDL) training outcomes (Edyburn, 2010; Higher Education Opportunity Act, 20 U.S.C. § 1003). Zeff (2007) reported that changes in higher education institutions and legislation may result from an increase in the diversity of the student population. Populations in postsecondary settings are becoming increasingly diverse which may influence postsecondary education laws regarding UDI as it did with architectural access changes.

Diversity of Postsecondary Students

The number of students with disabilities attending college continues to grow (Lombardi & Murray, 2011; Scott et al., 2003; Snyder & Dillow, 2010). Lewis and Farris (1999) estimated that, during the 1996-1998 academic years, 428,280 students with disabilities were attending postsecondary institutions. A recent study estimated that 707,000 students with disabilities were enrolled in postsecondary institutions (Raue & Lewis, 2011). Wagner, Newman, Cameto, Garza, and Levine (2005) estimated that 25% of students with disabilities attend college after graduating high school. Other studies have reported that students with disabilities in the U.S. comprise 11% of all students in higher education (Horn, Peter, Rooney, & Malizio, 2002; Newman, Wagner, Cameto, & Knokey, 2009).

These are promising increases considering that college graduates have a higher earnings potential than high school graduates (U.S. Department of Labor, 2011b). This increase will also provide more opportunities for individuals with disabilities to find employment after graduation. However, despite the increase in students with disabilities attending postsecondary education, they continue to have much higher dropout rates than students without disabilities (Belch, 2004; Murray, Goldstein, Nourse, & Edgar, 2000; Stodden, 2001). Graduation rates of students with disabilities are 34.8% at 4-year institutions compared to 51.2% for students without disabilities (Newman et al., 2011). These differences could be attributed to many factors including poor relationships and experiences with instructors or courses and instructional methods that are inaccessible for this population (Cook et al., 2009).

Students with disabilities are not the only group increasing their presence on college campuses in the U.S. Older and first generation students, minority students, and international students are also enrolling in college in greater numbers than ever before (McGuire & Scott,

2006; McGuire, Scott, & Shaw, 2003). With this increase in student diversity, faculty are being asked to design courses that address the needs of these various groups and their specific learning styles (Zeff, 2007). Although students with disabilities comprise a significant part of this diverse student population, currently many must choose to disclose their disability status and request accommodations. Even then, timely access to courses, programs, and services may still be an issue.

Harrison (2006) argued that this is an antiquated system based upon a medical model of disability where disability is seen as a defect that should not affect normal class proceedings. Hence, students with visual impairments often times must wait for reading materials to be converted to an accessible format. Scott et al. (2003) reported that traditional academic accommodations were manageable for a certain time period. However, this population has grown significantly and requires more inclusive and effective teaching methods. The principles of UDI may provide a way for faculty to address the learning styles of a wide variety of students, reduce the need for individual accommodations, and perhaps help retain students that otherwise might leave postsecondary settings before they graduate. In order for UDI to succeed at the postsecondary level many challenges will have to be addressed. Faculty, students, DSP and administrators all have a role in its implementation.

Barriers to Implementing UDI

UDI has the potential to create positive changes in postsecondary learning environments and benefit diverse learners. However, several barriers to successful implementation exist. First, UDI requires faculty to be the primary executors of the principles (McGuire & Scott, 2006). However, this may be problematic because, while many faculty are experts in their field, they are not necessarily trained in effective teaching methods (Cross, as cited in McGuire & Scott, 2006;

Lombardi & Murray, 2011; Ouellett, 2004; Scott et al., 2003). Johnson and Fox (2003) reported that time constraints are a major barrier to faculty being able to implement UDI methods.

Along with being content experts, many faculty are committed to a tenure system where research and scholarship are rewarded more than teaching skills (Deshler, Ellis, & Lenz, 1996; Seldin, 1995). Another barrier is the lack of training opportunities for faculty in order to become more educated on UDI, academic accommodations, postsecondary disability laws, and the overall needs of students with disabilities (Lombardi & Murray, 2011). Silver et al. (1998) noted barriers such as possible resentment of new instructional methods imposed on faculty and the tendency for some faculty to serve as "gate-keepers" in order to screen out those that they feel do not belong in higher education.

Raue and Lewis (2011) surveyed postsecondary institutions on the implementation of UDI and found that there were limited staff resources to provide training to faculty and staff on classroom accessibility issues, cost concerns about purchasing the needed technology, and more pressing institutional priorities. Other studies found that barriers included faculty resistance, no legal mandate for UDI, lack of time in order to assess and improve instructional methods, and lack of DSP expertise in instruction (Brinckerhoff, McGuire, & Shaw, 2002; Moriarty, 2007; Skinner, 2007). These issues are not surprising considering most faculty are not trained on inclusive teaching methods during their doctoral preparation.

In order to overcome barriers, postsecondary administrators, faculty, students and DSP must work together and move toward a more social model of disability where there is a concerted effort to make environments more inclusive (Harrison, 2006). It seems that resources such as time, money, technological expertise, and institutional support for UDI will play a major role in overcoming barriers. A source for systematic change might come from the fact that newer

faculty are incorporating more technology and switching the focus from teaching to student learning (Fink, 2003; Morrison, 2003). Ambrose (as cited in McGuire & Scott, 2006, p. 126) studied faculty development and reported on factors to improve college teaching which include (a) implement change slowly to build credibility and trust, (b) utilize effective administrators and faculty to highlight the importance of teaching, (c) know the institutional culture, and (d) use a model for change that includes theory, practice, and feedback (e.g., UDI).

In order for these barriers to be overcome, change must occur. Change does not occur quickly in higher education (McGuire et al., 2006). Stanley (2000) commented that change occurs in higher education in the U.S. due to perceived needs of society, legal mandates and social attitudes. It is possible that lack of legal mandates and negative social attitudes are reasons why teaching concepts such as UDI are not widely implemented in postsecondary institutions.

Statement of the Problem

Students with disabilities are attending postsecondary institutions in increasing numbers (Lombardi & Murray, 2011; Scott et al., 2003; Snyder & Dillow, 2010). This is partly due to an increase in physical access to campuses as well as the provision of academic accommodations based upon diagnosed disabilities. However, students with disabilities have lower retention and graduation rates compared to their peers without disabilities (Belch, 2004; Murray et al., 2000; Newman et al., 2011; Stodden, 2001). This outcome can affect their ability to find employment and reduce their overall earning power.

One reason for lower retention rates could be problems transitioning from the secondary educational system to a postsecondary setting. The U.S. public secondary educational system is legally required to provide much more prescriptive, individualized, and specialized education, including modifications in instruction, for students with disabilities. In postsecondary settings,

classes are fully integrated, instruction is not necessarily modified, and students must self-advocate and request accommodations for each class (Ketterlin-Geller & Johnstone, 2006; Lombardi & Murray, 2011). During this transition, there is a possibility students with disabilities become overwhelmed by this sudden change. There is also evidence that negative faculty attitudes toward students asking for accommodations can hinder student experiences and success in college courses (Beilke & Yssel, 1999; Dowrick et al., 2005; Farone, Hall, & Costello, 1998; Hartmann-Hall & Haaga, 2002; Parker, Embry, Scott, & McGuire, 2003).

An alternative that might increase positive experiences and retention and graduation rates of students with disabilities is postsecondary faculties' use of UDI. If more students with disabilities obtain postsecondary degrees, it may have a positive effect on the employment rate of people with disabilities. In order to implement UDI on college campuses, faculty are integral to its success and must be willing to change how they conduct their courses by working with campus resources to create fully inclusive learning environments. Although the idea of UDI has been defined since the late 1990s there is not widespread research on faculty attitudes toward the concept and implementation. UDI can be considered alongside learner-centered education (LCE) where the traditional focus on faculty teaching is exchanged for a focus on student learning. LCE requires instructors to make course decisions based upon their assessment of student learning as opposed to their expertise in their chosen fields (Harrison, 2006).

An abundance of research has been conducted on faculty attitudes toward students with disabilities and academic accommodations (Fonosch & Schwab, 1981; Leyser, Vogel, Wyland, & Brulle, 1998; Murray, Lombardi, Wren & Keys, 2009a; Vogel, Leyser, Wyland, & Brulle, 1999). Measuring faculty attitudes toward UDI is necessary because the inclusive principles go beyond academic accommodations due to the fact that it requires more input, planning and action

from faculty and is not required by law. Researchers have begun to provide instruments to test faculty attitudes toward UDI (Lombardi & Murray, 2011; Lombardi, Murray, & Gerdes, 2011). It is important to get feedback from faculty on their attitudes toward UDI before training is provided. Measuring faculty attitudes will provide a climate assessment of individual campuses and give insight on the differences between specific faculty groups. If UDI is accepted by faculty and implemented, it may lessen the need for individual accommodations and perhaps lead to more positive student outcomes. The use of UDI would also allow DSP to move from implementing accommodations and advocate services to supporting and consulting with faculty on designing inclusive courses.

Little is known about faculty attitudes toward UDI and whether there is a possibility it can be adopted and used on a national level. A problem exists in that students with disabilities are not staying at postsecondary institutions and graduating at the same rate as their peers without disabilities. Not enough is known about faculty attitudes toward inclusive teaching concepts such as UDI and faculty have not received widespread training on inclusive teaching practices (Burgstahler, Duclos, & Turcotte, 1999). More research on faculty attitudes has been recommended in order to test for the reliability and validity of survey instruments as well as to explore postsecondary stakeholders' (e.g., faculty) attitudes toward UDI (Lombardi & Murray, 2011; Lombardi et al., 2011).

Significance of the Study

Research needs to be conducted in the area of UDI in postsecondary educational settings as there have been very few empirical studies done on this topic (Roberts et al., 2011). Studying faculty attitudes toward UDI will add to this research agenda and results will help determine if UDI is a viable option in higher education. Faculty are fundamental to the success of UDI,

therefore their input is critical. If UDI principles are followed, it may lessen the need for individual accommodations (Ketterlin-Geller & Johnstone, 2006). This would be a monumental change in the inclusion of people with disabilities in higher education.

There has been a call for more research on faculty attitudes toward UDI in postsecondary settings and students with disabilities have criticized current instructional practices of faculty as barriers to learning (Lombardi & Murray, 2011; Madaus, Scott, & McGuire, 2003b). The current study utilized an instrument that has been used in the field, revised, and has been tested for initial reliability and validity. It also incorporates UDI principles where other instruments have not (Lombardi & Murray; Lombardi et al., 2011). The results will add to recommended research in this field.

Rehabilitation professionals, including rehabilitation counselors, often work in postsecondary institutions as DSP. These professionals need to be able to support faculty as institutions attempt to change to more universally inclusive learning environments. In our current academic environment there is increasing pressure for positive changes in student retention, learning and outcomes, accountability, and evidence-based practices (Graham, 2005; McGuire, Scott, & Shaw, 2006; Orr & Hammig, 2009; Ouellett, 2004; Schelly, Davies, & Spooner, 2011; Tinto; 2004). UDI may be a viable answer to create a positive change for students with disabilities in higher education. This inclusive instructional approach could benefit all diverse learners, including the 60% of students with disabilities that never disclose their disability while attending college (Wagner et al., 2005).

Purpose of the Study

The purpose of the current study was to measure faculty attitudes toward UDI and academic accommodations as measured by three subscales included in the Inclusive Teaching

Strategies Inventory (ITSI) survey. A better understanding of faculty attitudes in these areas are needed and differences between faculty groups were examined. The study was an examination of attitudinal differences among faculty at one medium-sized public institution and may be helpful in determining a readiness for change toward more universally inclusive learning environments as opposed to environments that provide academic accommodations on a case-by-case basis for students with disabilities.

Another purpose of this study was to add to the existing research on faculty attitudes toward UDI. Many studies have measured faculty attitudes toward students with disabilities and academic accommodations, but failed to question faculty on UDI principles. This study used an instrument that encompasses all these issues, especially inclusive teaching methods. The current study may be shared with DSP, administrators, students and interested faculty at the institution involved in the study. Although not included in the study research questions, the ITSI provided information that the institution might find valuable such as potential faculty training interests. Improving teaching skills of faculty could help with retention, graduation and career outcome rates for people with disabilities (Izzo, Murray, & Novak, 2008).

Southern Illinois University Carbondale (SIUC) was the only university participating in the study. Recently, an SIUC administrator called for ways to improve retention of students (Coleman, 2011). This study effectively started a dialogue with SIUC faculty on their attitudes toward UDI and possible training needs. UDI may prove to be an effective way for faculty to increase positive student outcomes such as increased retention and graduation rates.

UDI training for faculty and its subsequent use may prove to be beneficial for students with disabilities. Surveying faculty on their attitudes toward UDI and traditional academic accommodations is a first step in this process. The results of this study have added to an

important research agenda and provided insight on the campus climate and faculty willingness to adopt UDI principles in classrooms. It is also a step in the direction of further leveling the educational playing field for students with disabilities.

Research Questions

The following research questions guided this study:

1. How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Multiple Means of Presentation, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?
2. How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Inclusive Lecture Strategies, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?
3. How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Accommodations, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?

Data Analyses

The study utilized a non-experimental, cross-sectional survey research design. The independent variables included postsecondary faculty's amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of prior disability-related training. The dependent variables included faculty attitudes toward academic accommodations and UDI as measured by three subscales of the Inclusive Teaching Strategies Inventory (ITSI).

Descriptive statistics such as frequency distributions, mean scores, and standard deviations were included. Independent samples t tests and analysis of variance (ANOVA) tests were utilized for each research question to examine the relationship between the dependent and independent variables. Tukey's post hoc procedure followed statistically significant ANOVA tests to further examine specific group differences.

Definition of Terms

Academic Accommodations: Changes to in-class instruction, assessments, or course materials that make them accessible to students with disabilities (Ketterlin-Geller, & Johnstone, 2006) (e.g., extended time on exams, Brailled syllabus, note taking assistance). They may also be referred to as educational accommodations.

Academic Discipline: This refers to college or schools where faculty teach at their respective institutions.

Assistive Technology: "any item, piece of equipment, or product system whether acquired commercially off the shelf, modified, or customized that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (Assistive Technology Act, 29 U.S.C. § 2202(2)).

Attitude: A psychological tendency expressed by evaluating something with some degree of favor or disfavor (Eagly & Chaiken, 1993).

Disability: The ADA defines disability as (a) a physical or mental impairment that substantially limits one or more of the major life activities of such individual, (b) a record of such an impairment, or (c) being regarded as having such an impairment (Americans with Disabilities Act, 42 U.S.C. § 12102).

Disability Support Professionals (DSP): Disability advocate staff on postsecondary campuses that determine student eligibility for academic accommodations based upon diagnosed disabilities. They help implement academic accommodations. They may also be known as an ADA Compliance Officer.

Faculty: Individuals employed at universities that teach students in their academic discipline.

Postsecondary stakeholders: Postsecondary groups that implement or would be affected by the use of academic accommodations or UDI methods. These include: administrators, students, faculty, DSP and other staff.

Reasonable Accommodation: Reasonable accommodations are considered changes in the postsecondary environment (e.g., classroom, tests, services) that do not place an undue administrative or cost burden on the institution (Americans with Disabilities Act, 42 U.S.C. § 12111, 1990; Ketterlin-Geller & Johnstone, 2006)

Teaching Status: This refers to full-time or part-time teaching faculty.

Universal Design (UD): "…the idea that all new environments and products, to the greatest extent possible, should be usable by everyone regardless of their age, ability, or circumstance" (Center for Universal Design, 2010).

Universal Design for Instruction (UDI): Universal Design (UD) principles applied to the instructional environment to meet the learning needs of a diverse student population (Roberts el al., 2011). Also known as Universal Design for Learning (UDL) or Universal Instructional Design (UID). Some authors use these terms interchangeably, others separate them as having different principles. All are based on the principles of UD. For consistence and lack of confusion, this study used UDI.

CHAPTER 2

LITERATURE REVIEW

The following chapter extensively covers literature on faculty attitudes toward academic accommodations and Universal Design for Instruction (UDI). Attitudinal studies are an important area of research and help to gain insight on respondents' cognition, affect, and potential behavior (Cook, 1992). The purpose of this study was to measure faculty attitudes toward UDI and accommodations in order to better understand respondent beliefs and perceptions in these areas as well as examine differences among faculty groups. Another purpose is to add to the UDI body of research. The main sections in this chapter include 1) Attitudes toward People with Disabilities, 2) Postsecondary Academic Accommodations, 3) Experiences and Attitudes of Students with Disabilities, 4) Faculty Attitudes toward Academic Accommodations, 5) Postsecondary Universal Design for Instruction, 6) Studies on Postsecondary Stakeholders and UDI, 7) Faculty Attitudes toward UDI, and 8) Summary.

The first chapter reviewed the definition of UDI and the current postsecondary disability laws that require academic accommodations for students with disabilities. Chapter one also discussed the increasing number of students with disabilities in postsecondary settings, relevance of faculty attitudes, and the potential benefit of UDI teaching methods. Faculty will need institutional resources in order to implement UDI effectively. Educating faculty on this concept has the potential to increase UDI principles being implemented as well as increase positive experiences and retention and graduation of students with disabilities. Barriers to implementing UDI in postsecondary settings were reviewed along with the significance and purpose of the study. In order to examine potential barriers and assess the need for targeted training on specific

campuses, climate assessments (e.g., surveys) can be used to determine attitudinal differences in faculty toward UDI and academic accommodations.

It is important to research these areas because understanding faculty attitudes may help lead to better relationships between instructors and students with disabilities. The importance of faculty attitudes has been discussed for quite some time. Fichten (1988) and Rao (2004) reported that faculty's positive attitudes toward students with disabilities contribute to their inclusion and overall success in higher education. Students with disabilities interact with many stakeholders while they attend postsecondary institutions such as administrators, peers, and support staff. However, the faculty and student relationship is considered by some to be most valuable. Walker commented in the early 1980s (as cited in Murray, Wren, & Keys, 2008, p. 96) that support services can help students with disabilities gain physical access to campuses, but only faculty can provide access to knowledge for their students.

Past research studies were included in the literature review to support the need for the current study. It is important to note that there are many different inclusive educational models of UD that have been published (e.g., UDI, UID, UDL). All of these models, while different, are all based on the original principles of UD (Zeff, 2007). For consistency and lack of confusion, this study generally referred to these concepts as UDI, unless specifically talking about particular model concepts or principles from the literature. There has been confusion and discrepancy in the literature on whether or not to combine models and terminology (Koch et al., 2006; McGuire & Scott, 2006; Roberts et al., 2011).

Attitudes toward People with Disabilities

For many years, experts in attitudinal studies have discussed the effects that negative attitudes have on people with disabilities. Researchers such as Yuker (1988) and Antonak and

Livneh (1988) believe that negative attitudes, beliefs, and perceptions by society toward people with disabilities lead to negative behaviors that decrease the quality of life of people with disabilities. Negative attitudes toward people with disabilities may contribute to this population being marginalized with regard to education and employment (Antonak & Livneh, 1998, 2000; Hahn, 1985). Wright (1988) wrote that humans naturally stereotype individuals or groups that are different from them which lead to exaggerated or negative perceptions of the actual differences between people with disabilities and those without disabilities. Continuous interactions over time between people with disabilities and people without disabilities are necessary to increase positive attitudes toward people with disabilities (Yuker, 1988).

Yuker and Block (1986) discussed the findings from 129 studies conducted from 1960-1985 and found that attitudes toward people with disabilities varied significantly based upon age and amount of education. More positive attitudes were found among younger individuals compared to those that were considered elderly. Individuals that had more years of formal education also had more positive attitudes than those with less education. Yuker (1988) also reported that a person's sex can play a role in attitudes and found that female educators displayed more positive attitudes toward children with disabilities than male educators. Other studies have shown that an increase in interaction with (McCarthy & Campbell, 1993) and information (Ibrahim & Herr, 1982) on people with disabilities also increases favorable attitudes

Livneh and Cook (2005) suggested that negative attitudes toward people with disabilities originate from socio-cultural sources, psychodynamic mechanisms, internal fears of individuals without disabilities, and prejudice inducing behavior by people with disabilities. Socio-cultural sources refer to a social and cultural emphasis on physical appearance and capability as well as the importance of the ability for continuous employment. Psychodynamic mechanisms such as

the “spread phenomenon” include the belief, for example, that a person with a physical impairment will, consequently, also have lower intelligence or emotional instability (Livneh & Cook, 2005). Other examples of psychodynamic mechanisms include not associating with people with disabilities based on the fear of a possible perceived weakness by others in society or the belief that individuals with disabilities are being punished for some type of wrongdoing (Livneh & Cook, 2005).

Fears and anxieties of people without disabilities regarding interacting with people with disabilities come from the unsubstantiated belief that some type of illness or disability could be transmitted (Livneh & Cook, 2005). Prejudice inducing behaviors include those that the general public might generalize to all people with disabilities when they observe people with disabilities who are unemployed or who are dependent upon others (Livneh & Cook, 2005). Negative attitudes toward people with disabilities may lead to negative behaviors in the form of barriers to many aspects of everyday life. Barriers to education still exist in higher education for people with disabilities.

In order for students with disabilities to succeed in postsecondary institutions they must gain access to sometimes inaccessible environments. Currently, this means asking DSP on campuses to approve academic accommodations and then speaking with faculty about specific classroom accommodations. Hall and Sandler (1982) reported that success in higher education often depends upon the climate in the classroom. Students’ perceptions of unwelcome classroom climates can be detrimental to their overall success. Although the student and faculty relationship is an important one, researchers report that many faculty are uninformed about students with disabilities’ needs and that negative faculty attitudes are a primary reason students with disabilities fail in college (Deshler et al., 1996; Greenbaum, Graham, & Scales, 1995). Bruder

and Mogro-Wilson (2010) surveyed over 2,000 postsecondary faculty and graduate students on disability-related issues and also reported a lack of knowledge on this topic and recommended training on legal responsibilities, UDI, and disability issues and culture.

Postsecondary Academic Accommodations

Reasonable academic accommodations are mandated in postsecondary educational institutions by laws such as the Rehabilitation Act and the ADA. Currently college students with disabilities must request accommodations to make courses accessible for their needs. Academic accommodations are changes to in-class instruction, assessments, or course materials that make them accessible to students with disabilities (Ketterlin-Geller, & Johnstone, 2006) (e.g., extended time on exams, Brailled syllabus, note taking assistance). Examples of common postsecondary academic accommodations include (a) modified exams, (b) note taking assistance, (c) accessible reading materials, (d) laboratory assistants, (e) assistive technology (e.g., computer screen readers, speech-to-text software), (f) advocacy and counseling services, (g) course substitutions, (h) attendance modifications, (i) sign language interpreters, (j) video captioning or audio description (k) voice amplification systems for individuals with hearing impairments, (l) route familiarization for blind individuals, and (m) transportation assistance among others.

Students must self-disclose their disability and approach each one of their instructors and request specific classroom accommodations. Field, Sarver, and Shaw (2003) reported problems with this system that include (a) students feeling uncomfortable disclosing their disability to faculty, (b) accommodations may be difficult and time consuming (e.g., Brailled music textbooks), and (c) students remain dependent on DSP to act as a mediator between them and faculty. Researchers (e.g., Hasselbring, Lewis, & Brausch, 2005; Izzo et al. 2008) encourage a more inclusive model (e.g., UDI) that lessens the need for individual accommodations.

Understanding student and faculty attitudes and experiences are also valuable in order to improve these relationships in the future. Understanding these groups' perspectives may provide insight regarding the viability of UDI in postsecondary settings.

Experiences and Attitudes of Students with Disabilities

This section will review college students' experiences and attitudes in disclosing their disability to university officials and negotiating with instructors on appropriate accommodations. Few studies or publications exist on students' attitudes or experiences regarding postsecondary academic accommodations (Barnard-Brak, Sulak, Tate, & Lechtenberger, 2010; Dowrick et al., 2005). The studies that have been conducted often show problems in the faculty/student relationship with regards to accommodations.

Beilke and Yssel (1999) interviewed 10 students with disabilities on their experiences with faculty and how they perceived faculty members' attitudes when requesting accommodations. Students reported problems when working with faculty in the classroom environment. Overall, accommodations were granted according to these students, however they perceived a negative classroom climate. Problems reported included perceptions that instructors (a) were unwilling to speak with students, (b) encouraged students to take other classes or find other instructors, or (c) wanted a student to change majors. Students also reported being interrupted by instructors when trying to request accommodations.

Dowrick et al. (2005) conducted focus groups of college students with disabilities in ten states. The purpose was to identify potential educational and employment barriers. Focus groups were held in at least 10 different locations throughout the country and had three to nineteen participants at each session. Results indicated continued difficulty obtaining accommodations and supports in postsecondary settings. Researchers found a common theme of struggling with

institutions and faculty for basic accommodations such as electronic text for blind students. Focus group members expressed the perception of negative attitudes and low expectations while attending college and when searching for employment. The authors recommended training for faculty and other stakeholders and strengthening the coordination of support services.

Hartmann-Hall & Haaga (2002) conducted a study of 86 students with learning disabilities (LD) from various universities in the Washington, DC area. The purpose was to measure students' perceptions of their disability and their willingness to seek assistance or accommodations from their institutions. Participants were interviewed, given self-report assessments on LD and self-esteem, and provided with hypothetical scenarios on interacting with faculty and peers. One significant result was that once a student asks for an accommodation and receives a perceived negative response or attitude, specifically from faculty, they are less likely to ask for assistance in the future. Also, students who believed their LD to be stigmatizing or non-modifiable were less willing to request accommodations for fear of negative reactions from peers and instructors. Similar results have been found with regard to students not disclosing disabilities (Burgstahler & Doe, 2006; National Center for the Study of Postsecondary Educational Supports, 2000). The researchers recommended training interventions for faculty and peers in order to educate them further on LD, accommodations and the impact of their reactions on students with LD's seeking assistance.

Other studies conducted on students with disabilities' perceptions and experiences show that changes are need in faculty attitudes in order to improve faculty and student relationships (Elacqua, 1996; Farone et al., 1998; Reis, 1997; West et al., 1993). Recently, test instruments to measure students' attitudes toward requesting academic accommodations have been created and are being tested for validity and reliability for use in the field (Barnard-Brak et al., 2010). These

tests will be used to determine if a decreased likelihood in requesting accommodations leads to poor academic achievement among students with disabilities.

In his review of the literature regarding college students with disabilities, Stanley (2000) concluded that barriers still exist at institutions that make it difficult for students with disabilities to complete degrees successfully. He concluded that faculty with positive attitudes toward students with disabilities, past experiences with people with disabilities, and knowledge of disability laws are associated with appropriate accommodations being implemented. These qualities also are likely to produce a more positive experience for students as well (Stanley, 2000). Studies have shown that students with disabilities do not necessarily feel comfortable disclosing their disability to faculty and negative faculty attitudes along with poor faculty and student relationships may lead to less positive outcomes for students with disabilities. One of the benefits of using UDI methods in classrooms is that it may decrease the need for students with disabilities to disclose their disability and request academic accommodations.

Faculty Attitudes toward Academic Accommodations

Many studies have been conducted on faculty attitudes toward academic accommodations. It is important to understand faculty attitudes toward accommodations in order to move forward with studies on attitudes toward UDI. Unlike accommodations, UDI is not mandated in postsecondary settings and it is important to document attitudes toward the two concepts for comparison. Very little research has been conducted on faculty attitudes toward UDI. Therefore it is important to review research that has been conducted on faculty attitudes in order to gain insight on how faculty might feel about UDI concepts. The independent variables for the current study included faculty's amount of teaching experience, teaching status (i.e., full-

time, part-time), academic discipline, and amount of disability-related training. Previous studies on faculty attitudes examining these variables will also be reviewed.

Zhang et al. (2010) surveyed faculty in order to measure their knowledge, beliefs and practices with regard to providing academic accommodations to students with disabilities. Based upon previous studies in this area, the authors reported that four factors influence faculty decisions on providing accommodations: knowledge of legal mandates, personal attitudes toward students with disabilities, perceived institutional resources, and comfortableness interacting with students with disabilities. Faculty members (N = 209) from 9 institutions participated in an online survey. Results indicated that most faculty understood their legal responsibilities and more than half felt like they had institutional support. However, the authors concluded that faculty needed more exposure to people with disabilities and that they were not accommodating students according to legal mandates or best practices. In a similar study, Bourke, Strehorn, and Silver, (2000) found that faculty who perceived they had departmental and DSP support were more likely to express beliefs of the importance of academic accommodations and implement them for students with learning disabilities.

Although Zhang et al. (2010) recommended more faculty interaction with people with disabilities, other studies have shown that this prior experience does not necessarily have a significant positive effect on their willingness to provide accommodations (Bourke et al., 2000; Harmon, 1997; Lewis, 1998; Rao, 2002). Zhang et al. (2010) concluded that the two most important predictors of faculty providing accommodations included faculty knowledge of legal mandates and the belief that they have institutional support. Training was recommended for faculty that would be conducted by DSP and supported by the institution. Incentives were recommended to facilitate ongoing faculty participation. For example, the Disability Training

Network (DTM) was designed to provide training and support to faculty in order to help them work with students with disabilities at universities in Texas (Zhang et al., 2010). Specifically, institutions and DSP should train by first, assessing faculty needs and concerns, design in-service training, and evaluate the outcome of the training (Zhang et al., 2010).

Leyser et al. (1998) examined faculty attitudes, knowledge and practices regarding academic accommodations using several independent variables. Variables in the study included sex, experiences with individuals with disabilities, rank and academic discipline. They also compared the results to a previous study conducted a decade earlier. The study was conducted at large mid-western university a sample size of 420 faculty was assessed. Most of the results were consistent with similar studies, however faculty reported limited experiences with people with disabilities, limited knowledge of disability legislation and little training. Most faculty expressed a willingness to accommodate, but had limited experience in providing accommodations.

Specifically, one-half of faculty had little knowledge or contact with disability support offices on campus, and minimal training, knowledge and skills for making accommodations. Despite these results, a large majority of faculty expressed a willingness to accommodate students with disabilities. The researchers suggested that many of these findings matched the findings of other faculty attitudinal surveys. However, their findings on differences related to sex are inconsistent with other studies. Male faculty reported more experience with people with disabilities and were more willing to accommodate than females.

Another valuable part of the Leyser et al. (1998) study was that they compared their findings to a study done a decade earlier in 1985. They focused on findings from the college of Education and found mixed results when comparing the two studies. The faculty from 1985 seemed to have more experience, knowledge and training regarding people with disabilities and

disability law than faculty in 1996. The authors attributed this to a grant that was awarded to the college of Education in the 1980s that introduced a training program on mainstreaming and that may have caused greater sensitivity among faculty towards the needs of students with disabilities. This supports the idea that faculty training on disability issues might be beneficial for faculty and students with regard to academic accommodations. Training for faculty was also recommended (e.g., in-service, workshops).

Studies with Amount of Teaching Experience as an Independent Variable. Findings related to faculty attitudes toward academic accommodations based upon amount of teaching experience produced no significant findings and very few studies exist that examine this variable. Kraska (2003) and Vogel et al. (1999) found no statistically significant results when examining faculty attitudes toward academic accommodations based upon amount of teaching experience.

Studies with Academic Discipline as an Independent Variable. Nelson, Dodd, and Smith (1990) looked at differences based upon academic disciplines that included the colleges of Education, Business, and Arts and Sciences. Faculty in the college of Education showed more positive attitudes toward accommodating this population than faculty in the colleges of Business and Arts and Sciences. Faculty surveyed indicated that they would be willing to learn new methods in order to help students with LD. This is a promising find and can be interpreted as a willingness to learn methods such as UDI. The researchers encouraged more faculty attitudinal studies at various higher educational institutions in order to influence future research in this field and training for faculty.

A similar study at a private-four year university found that faculty in the college of Education were the most willing to accommodate while the college of Business was the least willing (Vasek, 2005). Many faculty reported having little or no contact with students with

disabilities or the disability support office. As a result of the study, the disability support service reached out more to faculty to increase knowledge and awareness of students with disabilities and the support office. Additional information was added to the disability support website specifically for the benefit of faculty members. Skinner (2007) found similar results where the college of Education had more favorable attitudes compared to the college of Business.

Murray et al. (2008) found that the college of Education reported having more knowledge, experience and training regarding disabilities and were most interested in more training and the most willing to accommodate compared to other academic disciplines. Rao and Gartin (2003) found that faculty in the college of Education had more favorable attitudes toward accommodations compared to all combined colleges. Colleges of Engineering and the School of Law were had significantly less favorable attitudes. Other studies have found that colleges of Education were generally more willing to provide accommodations compared to other colleges or schools (Fonosch & Schwab, 1981; Lewis, 1998; Rao, 2002; Vogel et al., 1999). Rao (2004) generalized that most studies with academic discipline as a variable found that faculty from soft sciences (e.g., Education) had more favorable attitudes than faculty from hard sciences (e.g., Chemistry, Math, Engineering).

One of the reasons for significant attitudinal differences between soft and hard sciences might be due to accommodations being more difficult to implement in hard sciences. The Advisory Commission on Accessible Instructional Materials noted that accessibility in the areas of Science, Technology, Engineering, and Math (STEM) is far behind compared to other academic disciplines ("Advisory Commission," 2011). This is due in large part to the difficulty in making math and statistical notation accessible with assistive technology such as computer screen readers for blind users. Moriarty (2007) also noted specific issues for STEM faculty

making it more difficult to provide accommodations and inclusive teaching practices. The author recommended training and institutional resources to assist faculty with increasing accessibility.

Studies with Teaching Status as an Independent Variable. Studies show inconsistencies when comparing full-time and part-time faculty with regard to attitudes towards academic accommodations. Very few studies have examined this variable. Bourke et al. (2000) found that part-time faculty had more favorable attitudes toward academic accommodations compared to full-time faculty. Nelson et al. (1990) and Vogel et al. (1999) found no significant results when comparing these groups.

Studies with Prior Disability-Related Training as an Independent Variable. Several studies on faculty attitudes toward disability and accommodations found that training focused on disability issues may positively affect faculty attitudes and possibly actions (Bigaj, Shaw, & McGuire, 1999; Murray et al., 2009a; Murray et al., 2008; Sowers & Smith, 2004; Zhang et al., 2010). Rao (2002, 2003), and McGee (1989) reported that faculty with more knowledge on disability legislation had significantly more favorable attitudes. Bourque (2004) reported that faculty with more knowledge of disability legislation was a significant predictor of more favorable attitudes toward accommodations. GlenMaye and Bolin (2007) found a positive correlation between social work faculty's self-reported knowledge of psychiatric disabilities and effectiveness ratings of accommodations. Results on university staff training have shown similar results (Murray, Lombardi, & Wren, 2011).

Postsecondary Universal Design for Instruction (UDI)

The current study focused on postsecondary faculty attitudes toward UDI and academic accommodations. Many studies have measured faculty attitudes toward academic accommodations, however few have included measures regarding the newer concept of UDI.

Published studies and information do exist on UDI concepts in various facets of higher education from the validation of UDI principles in higher education (McGuire et al., 2006) to Universal Design of Assessment (UDA) (Ketterlin-Geller & Johnstone, 2006; Thompson et al., 2002) to postsecondary website design (Harper & DeWaters, 2008; McGuire & Scott, 2006). However, Cook et al. (2009) could not find any literature examining whether faculty believe UDI is important or if they are using the principles.

The instructional model called Universal Design for Instruction (UDI) was first published in 2001 by Scott, et al. The nine principles outlined (see Appendix D) were based directly upon seven architectural Universal Design (UD) principles (Zeff, 2007). These principles, while based on previously established effective principles, have also been tested for subscale validity and recommended for effectiveness studies (Scott, McGuire, & Foley, 2003a). Scott et al. (2003b) reported on how the UDI principles could be applied to postsecondary education and provided good examples along with a case study. Appendix D provides the principle and definition along with general instructional examples of how UDI can be incorporated into postsecondary education. These principles have been established as a guide for instructors or postsecondary institutions to begin the process of using inclusive teaching practices to help an increasingly diverse student body.

When using new methods or systems, it is important to be able to tell the audience about the reliability and validity of any given instrument. McGuire and Scott (2006) reported on three studies they conducted in order to test the validity of UDI principles and explore their use. They described three validation efforts including student focus groups, interviews with outstanding teaching faculty, and interviews with student nominated inclusive faculty. The researchers concluded that the UDI concept is appropriate in higher education settings. Scott et al. (2003)

assert that the traditional model of accommodations has not helped students learn or created positive outcomes. They recommended UDI to address this need for all students. Others report that the traditional model of self-disclosing disability and requesting accommodations is perceived as unwelcoming and many times unused by those who need them (Burgstahler & Doe, 2006; West et al., 1993; Wilson, Getzel, & Brown, 2000; National Center for the Study of Postsecondary Educational Supports, 2000).

Scott et al. (2003b) conducted a case study of an instructor's response to student diversity using UDI. The instructor informed herself more on academic accommodations and UDI. She changed her own teaching practices, switching from a lecture format to include more group work and problem-solving assignments. Other changes included allowing students to replace a low test grade with a project grade, online notes, and extra credit for students who took good notes and distributed them. The instructor also published a "newsletter" that reiterated important class aspects. This is an example of how faculty could slowly start to make changes in how they teach. UDI principles were designed to be a guide for institutions to start to think of how principles can be operationalized on individual campuses.

Researchers are starting to provide recommendations on how to implement UDI in postsecondary settings. Orr and Hammig (2009) reviewed 38 research articles related to UDI in order to provide research based methods and recommendations for inclusive pedagogy. The articles they reviewed ranged in years from 1991-2008. Using content analysis, opening coding and categorization, five main themes were developed including (a) Backward design, (b) Multiple Means of Presentation, (c) Inclusive Teaching Strategies and Learner Supports, (d) Inclusive Assessment, and (e) Instructor Approachability and Empathy.

Backward design involves the process of creating learning goals and objectives and then selecting methods for achieving learning outcomes (e.g., assignments, assessments) which should be clearly communicated to students (e.g., course syllabus) (Orr & Hammig, 2009). A second theme, multiple means of presentation, includes providing class content in many different ways such as assigning books that are available in print as well as audio or placing class notes online. Other examples include presenting classroom material graphically (e.g., PowerPoint), online, using audio or video, or group discussion (Oullett, 2004; Rose, Harbour, Johnston, Daley, & Abarbanell, 2006).

Inclusive teaching strategies and learner supports include lecture strategies that aid in comprehension of the material. This may include study guides, availability of assistive technology, writing assignment support including tutors, breaking up large projects into smaller assignments, and consistent feedback and grade reports, among other strategies (Orr & Hammig, 2009). The theme of inclusive assessment allows students more choice in how they want to demonstrate mastery of course objectives outlined in the course syllabus (e.g., videotaped presentations, take home tests, extended time tests for all students). Finally, instructor approachability and empathy involves faculty being available, getting to know their students and ensuring students find campus resources as needed. The authors recommended using the themes identified to approach college administrative officials as a way to train faculty regarding inclusive instructional techniques and reiterated the importance of institutional support if inclusive practices are to succeed (Orr & Hammig, 2009).

Differences Between Academic Accommodations and UDI

It is important to clarify the differences between academic accommodations and UDI implementation. Academic accommodations require more direct action of students with

disabilities and DSP. Students request accommodations from DSP, wait for approval, then approach instructors in class to inform them of their needs. DSP help implement accommodations through specific procedures and may need other paid individuals to help make sure accommodations are correctly implemented (e.g., note takers). Common forms of accommodations include note taking, test accommodations (e.g., extra time), tutors, and scribes (Tagayana et al., 2005; Upton, 2000; Upton & Harper, 2002; Upton, Harper, & Wadsworth, 2005). Reasonable accommodations are widely mandated through federal legislation whereas most UDI methods are voluntarily used by postsecondary institutions or faculty.

UDI requires faculty to take more of an active role in attempting to make courses more inclusive thereby decreasing the need for students with disabilities to request accommodations. Some faculty have reported that creating inclusive classrooms will be time consuming at first, but felt that they would save time once in place and used routinely (Silver et al., 1998). An example of a difference between accommodations and UDI deals with the provision of accessible reading materials. In traditional accommodation settings, students with print disabilities may request an audio format for all of their reading materials from DSP offices. Postsecondary faculty are allowed great flexibility in choosing reading materials and may change textbooks or editions whenever they choose (Scott et al., 2003b). This flexibility in choosing reading materials may create a barrier if faculty do not make decisions early enough for students to make timely requests to DSP and then wait for accessible materials to be created and provided (Scott et al., 2003b).

Utilizing the knowledge and principles of UDI, faculty would make decisions on reading materials as early as possible and actively seek out reading materials that are readily available in a variety of formats (e.g., print, audio, online). Utilizing support from DSP, they could then

distribute this information to their students in order for them to choose their preferred format. Some universities are offering help to instructors in making reading materials (e.g., journal articles) accessible for all students (Center for Teaching Excellence, 2011). Since using UDI methods are voluntary in most cases and time restrictions being a major barrier, faculty will need to utilize campus resources to slowly start the process of creating more inclusive learning environments.

UDI Resources for Faculty

Ouellett (2004) sees a discrepancy between higher education's exclaimed values of diversity and inclusion and the actual access that is available for a diverse student population. The author contends that faculty are open to inclusive instructional practices, but may not know how to implement UDI principles in their classrooms. Once DSP and faculty development resources can effectively assist faculty through training opportunities, the more likely inclusive teaching methods will be utilized. Many studies regarding postsecondary academic accommodations or UDI recommend more training for faculty (Salzberg et al. 2002). Moriarty (2007) found that some faculty are willing to go through training to incorporate techniques that will benefit students with disabilities, however it will take them time to design inclusive courses and that postsecondary administrations must be supportive in the process. Some postsecondary institutions are already providing training materials for faculty and providing examples of how UDI can be implemented in classrooms.

Rose et al. (2006) conducted a case study on how a traditional lecture course was transformed to include more inclusive teaching methods. The T-560 course was a traditional lecture and reading course with information being disseminated to students. Instructors kept lectures and textbooks as central to the course as many college classes do. However, to add to

this, alternative representations of the lectures were provided. Lectures were made available by sign language interpreters (if needed) and lecturers were aware of the need to orally describe visuals for students with visual impairments. Lectures were also videotaped and deployed online so all students could review them. An option to caption the videos for deaf or hard-of-hearing students was available as well. Students received participation points to post their notes online, which prevented the need to hire individual note takers.

PowerPoint slides were used to reiterate what the instructor was talking about and also useful in bringing up discussion points. To supplement lectures and readings, optional discussion groups were held to help provide clarification following the lecture. Discussion groups met online or in-person. Students in T-560 had the choice of which textbook to buy and were given choices for more than one. At least one of the books was available in audio if needed. Instructors utilized videos in class and had a course website where all pertinent information could be found at any time (e.g., Blackboard). In order to facilitate multiple means of expression, students were required to choose two projects that they would complete as part of their assessment for the course. The projects could be done in a variety of formats such as a presentation or video. The authors concluded that the methods used in the study engaged students more and had a positive effect on their learning (Rose et al., 2006).

Disabilities, Opportunities, Internetworking, and Technology (DO-IT). The University of Washington established the DO-IT center to research and design methods for faculty to meet the needs of students with disabilities in the classroom (Zeff, 2007). DO-IT is internet based so faculty can access it anytime. The website provides guidance on many accessibility issues and has a Faculty Room website specifically for faculty who want to learn more about inclusive teaching practices (University of Washington, n.d.). An abundance of

material exists for faculty who may want to change certain aspects of their teaching using a universal design perspective (Zeff, 2007).

Disability Training Network. The Disability Training Network (DTN) was established in the Texas A&M University (TAMU) system. It was designed to help and support faculty so that they may effectively work with students with disabilities (Zhang, et al. 2010). The DTN provides free online information about UDI, accommodations, rights and responsibilities, and web accessibility. Faculty can use the online modules to learn at their own pace and utilize many other instructional tools such as a universally designed syllabus (Disability Training Network, 2010).

Faculty and Administrator Modules in Higher Education (FAME). The Faculty and Administrator Modules in Higher Education (FAME) was developed based upon studies conducted with faculty at postsecondary institutions in Ohio (Izzo et al., 2008) FAME is a web-based, self-paced learning module for higher education faculty to use for training on inclusive learning environments. FAME has shown to be effective in increasing the comfort levels of faculty being able to meet the instructional needs of students with disabilities (Izzo et al., 2008). The online learning modules include topics such as rights and responsibilities, UDL, web accessibility, college writing, and climate assessment (FAME, n.d.).

Faculty Learning Communities. Koch et al. (2006) recommended college campuses implement Faculty Learning Communities (FLCs) to promote inclusive teaching such as utilizing the principles of UDI. An FLC is a group of faculty that gather to share experiences in order to promote better teaching and learning (Cox, 2004). Koch et al. described how FLCs can be catered to include UDI and activities that faculty can engage in to help students by utilizing

UDI instructional techniques. Other UDI resources support the use of FLCs (Disability Training Network, 2010).

Facultyware. McGuire et al. (2003) described Facultyware at the University of Connecticut. Facultyware is website based and allows faculty to learn more about UDI, provides examples and ways to implement inclusive methods in their classrooms. For example, faculty can get templates of detailed syllabi that include information on grading rubrics and other information that set clear standards for all students. Another feature of Facultyware is that faculty can submit their inclusive teaching methods and have it published on the Facultyware website after peer review for appropriate use of UDI principles (Facultyware, 2006).

These are just some of the resources faculty can use to begin making incremental changes to courses. Many authors recommend training for faculty in hopes that it will have a positive effect on their attitudes and actions. However, faculty time constraints may prevent some faculty from attending workshops or training opportunities. Many of the resources outlined are available online and can be utilized whenever faculty have time. Due to faculty time constraints, Humphrey, Woods, and Huglin (2011) recommended assigning one faculty per college or department to be the spokesperson on UDI and the needs of students with disabilities. This individual would be able to relay information to others in departmental meetings and could be part of a campus-wide committee that maintains close contact with DSP on campus. Individual campuses will have to decide what is appropriate based upon faculty resources and the institutional culture.

Studies on Postsecondary Stakeholders and UDI

Although faculty have been targeted as the primary key for UDI to be successful on college campuses, other postsecondary stakeholders' (i.e., DSP, students with disabilities,

administrators) input is important so that potential issues or barriers may be examined. Salzberg et al. (2002) surveyed 214 directors of DSP offices on the need to train faculty on disability issues. Generally, DSP were not satisfied with their institutions level of faculty training on disability issues. The authors also found that UDI was mentioned as an appropriate training need and felt that it would be an important issue in the future. Directors of DSP offices also noted training problems such as getting faculty to attend training and deciding on a proper way to conduct training and engage faculty. Participants also expressed the importance of administrative support in order to train faculty on disability issues.

Embry, Parker, McGuire, and Scott (2005) conducted focus groups consisting of sixteen DSP on their perceptions and beliefs of UDI with regard to its strengths and weaknesses, their role in implementation, and supports needed for implementation. Focus group sessions were recorded and transcribed and data was analyzed and coded appropriately. Results from the two focus groups showed that DSP had a belief that UDI speaks to the needs of diverse students, and recognized a need for a transition to more UDI practices and the importance of their role in promoting its use. DSP also felt that disability accommodation requests would decrease if UDI was implemented broadly on campuses. They also recognized the need for more research on UDI as well as support from campus leaders in order to implement institutional change. Another focus group study done on multiple Ivy League campuses with students, faculty and administrators resulted in UDI training for faculty and a complete overhaul of courses to reflect inclusive teaching methods (Zeff, 2007).

Spooner, Baker, Harris, Ahlgrim-Delzell, and Browder (2007) tested the effects of UDL training on seventy-two undergraduate and graduate students in education. The purpose was to find out if UDL training affected the way education students created lessons plans for students

with disabilities. Subjects were randomly assigned to control and experiment groups and the intervention was a one hour lecture on how to use UDL in lesson plan writing. Results showed that a brief introduction to UDL helped future teachers design learning plans that reflected inclusive teaching methods. The results of this study supported the use of UDI principles and demonstrated that training can help introduce instructors to new teaching methods that benefit all students. Although the participants were not college faculty, the idea of training and education on disability issues and UDI is valuable for all stakeholders in higher education. Other studies have shown that UDI training helps faculty and future teachers acknowledge the importance of disability issues as well as implement UDI principles in coursework (McGuire-Schwartz, & Arndt, 2007; Zhang, 2005). These results help validate the use of UDI principles in higher education.

Madaus et al. (2003b) found that students with learning disabilities want faculty that are consistent, set clear course goals and respect the learning process. Students also desired clear delivery of classroom content utilizing note outlines, study guides, plenty of time for questions during courses and instructors that are approachable. Interestingly, Madaus, Scott, and McGuire (2003a) found that award-winning outstanding faculty reported their effective instructional strategies included setting clear and high expectations, being approachable and engaging students.

Harrison (2006) made the connection between UDI and Learner-Centered Education (LCE) in that both require an instructor to be both continuously reflective and flexible. Harrison points out that LCE has not always included students with disabilities in its purpose and that UDI concepts have not yet established specific steps or processes for integrating principles into the classroom. Harrison recommends that DSP in postsecondary settings use LCE and UDI to help

instructors systematically identify their course expectations and modify courses to make learning as accessible to as many learners as possible. The process requires instructors to put more emphasis on their assessment of student learning rather than their expertise in their academic discipline.

Schelly et al. (2011) looked at a variety of concerns when implementing the principles of Universal Design for Learning (UDL). They conducted the study in an effort to respond to educators calling for evidence of the benefits of using UDL with regards to student retention and outcomes. The study measured student perceptions of changes or improvements in instruction after their instructors participated in UDL training and attempted to change instructional methods during the course. Results indicated that UDL training for instructors may increase the implementation of UDL principles in postsecondary courses. This interpretation was based on the fact that students surveyed before and after the UDL training for instructors indicated that instructors used inclusive methods in classrooms significantly more than before the training.

Schelly et al. (2011) pointed out two areas of the training that resulted in the most actual change in teaching by the instructors. The first was presenting information in a variety of ways and providing choice for course materials in a variety of formats. Summarizing key content before, during and after the presentation was the second most implemented area. The researchers pointed out that just a few hours of training allowed faculty to immediately implement changes that students found useful. The authors also maintained many students with disabilities never request accommodations at postsecondary institutions and UDL utilized in classrooms would help these individuals as well as all diverse learners.

Faculty Attitudes toward UDI

The need for more empirical research on the topic of UDI is needed. A systematic review of empirically based articles on UDI in postsecondary education found only eight published studies that met the criteria (Roberts et al., 2011). The criteria included only accepting peer-reviewed articles published after 2000 and studies that were focused on the use of UDI, UDL, UID, or UD in postsecondary settings. Most of the studies found included focus groups, case studies, and surveys. Participants included many postsecondary stakeholders such as students, administrators, DSP, and faculty. Interestingly, only one quantitative, true experiment study was discovered and is reviewed in this literature review. The researchers recommended further research on operationalizing the principles of UDI and to study the impact on student outcomes. Only two of the studies Roberts et al. reviewed involved faculty and only one of those measured faculty attitudes toward UDI. Kavale and Forness (2000) suggested that proper attitudes need to be in place before inclusive methods are implemented widely.

It is possible for UDI to be successful in postsecondary settings, however more research is needed on faculty attitudes toward this concept and process. Brinckerhoff et al. (as cited in Scott et al., 2003, p. 371) commented, "the goal should center upon serving students with disabilities in universally accessible learning environments. Just as a student in a wheelchair needs no disability services in a physically accessible environment, a student with LD may need no disability services in an instructionally accessible environment". In order to achieve this goal, more information is needed on faculty attitudes toward the UDI concept. Faculty are so integral to UDI being successful that it will be important to measure their attitudes, beliefs, and perceptions before implementing action on individual campuses. The following section reviews studies that involve faculty and UDI aspects.

In a seminal study, Silver et al. (1998) conducted one of the first studies on faculty and inclusive instructional practices. They termed their approach Universal Instructional Design (UID) and conducted three focus groups with a total of 13 faculty participants. Faculty in the study reported their views on instructional practices, strategies they believed they utilized that could be associated with UID, and barriers to implementing UID in higher education. Overall, the faculty held positive attitudes toward UID and expressed that they wanted all their students to do well and wanted to take action in order to serve students with diverse learning needs. The participants recommended UID training for faculty along with written materials that would help them implement the concepts. Silver et al. cited specific areas that need to be addressed when implementing UID in higher education. First, the university culture must be part of the process. Second, curricular reform in higher education must be actively inclusive to students with disabilities and faculty and administrators must be aware of this population's needs. Finally, faculty development is becoming more important and the researchers felt UID may be a resource for professional development.

Izzo et al. (2008) chose a mixed-methods design and surveyed 271 faculty and teaching assistants (TA) on faculty perspectives on UDL in higher education. They followed the survey with focus groups of ninety-two faculty and TA's. Participants responded that UDL was the most needed training area for faculty and TA's. After the survey and focus groups were completed, researchers developed a training tool called Faculty and Administrator Modules in Higher Education (FAME). FAME was created based upon survey and focus group responses for needed training in regards to UDL. FAME is web-based, self-paced learning module for higher education faculty to use for training on inclusive learning environments. After participating in FAME, 98 faculty members were surveyed and supported the learning tool and 92% of

participants reported an increase in their ability to meet the instructional needs of students with disabilities. The researchers recommended further research to validate the UDL approach because they believe it has the potential to produce better learning outcomes for all students.

A second study, using qualitative and quantitative surveys, was conducted on sixty-three faculty and administrators to assess the FAME module. The participants of this second study reported an increase in comfort of meeting the instruction needs of students with disabilities. Izzo et al. (2008) stressed that faculty should set clear goals, provide multiple learning opportunities for students, and evaluate student progress often with multiple assessment opportunities.

Researchers that look at faculty attitudes and actions regarding UDI do so in the hopes that as higher education changes, it will become more accessible to all types of different learners and that requests for academic accommodations will become less necessary and common. However, specific and strong barriers exist with regard to implementing UDI such as a lack of institutional interest and lack of resources for training (Raue & Lewis, 2011). The studies in this literature review are important because they highlight the importance of first understanding campus climates and faculty's understanding of and willingness to utilize UDI principles.

Cook et al. (2009) surveyed 309 faculty within an eight campus university system regarding disability laws, willingness to accommodate, accommodations, UDI, and disability characteristics and etiquette. Results indicated that faculty viewed accommodation policies and disability etiquette as highly important and that they were being satisfactorily addressed. Faculty felt legal mandates, UDI and disability characteristics were important but not being addressed as they should. The researchers felt that UDI was reported as not widely implemented because the participants had not been trained on the principles. Interestingly, faculty reported their

willingness to accommodate was not highly important and also not being addressed satisfactorily. This last finding could have been due to specific items that made up the willingness to accommodate subscale (Cook et al., 2009). Some items on this subscale included time consuming accommodations such as allowing extra credit assignments or waivers or substitutions for classes.

Cook et al. (2009) concluded that some of the items on the willingness to accommodate subscale were perceived as changing the nature of the course or difficult to implement. Other, less time consuming and more traditional items on the willingness to accommodate subscale were given more favorable scores (e.g., extended time on tests and recorded lectures). Other studies have shown similar results (Murray et al., 2008; Nelson et al., 1990). The researchers provided steps to increase students' with disabilities success in postsecondary settings. The first step is to assess faculties' priorities and knowledge of important issues regarding students with disabilities. The second step is to form an action agenda in order to implement recommendations from specific institutional faculty assessments. The authors concluded that making changes will require resources, organizational support and effort.

Studies Measuring Multiple Independent Variables

Very few studies exist on faculty attitudes toward UDI. Even fewer examine faculty attitudes based upon independent variables such as amount of disability-related training or academic discipline. No studies on UDI have compared faculty based upon teaching status (i.e., full-time, part-time). Lombardi and Murray (2011) developed and evaluated an instrument that measured 289 full-time, postsecondary faculty members' attitudes toward students with disabilities, academic accommodations and UDI at one medium-sized public research university in the Pacific Northwest. The survey they developed, called the Expanding Cultural Awareness

of Exceptional Learners (ExCEL) survey, was designed using information from other faculty attitude studies and was tested for reliability and validity.

The ExCEL included eight factors faculty were rated on (a) Fairness in Providing Accommodations, (b) Knowledge of Disability Law, (c) Adjustment of Course Assignments and Requirements, (d) Minimizing Barriers, (e) Campus Resources, (f) Willingness to Invest Time, (g) Accessibility of Course Materials, and (h) Performance Expectations. Three of these factors were found to be reliable. Independent variables included sex, rank, college/school, and prior disability-focused training.

Results indicated that faculty who were female, non-tenured, in the college of education, or had previous disability-related training were more likely to express positive attitudes toward UDI and providing accommodations. These findings are consistent with other studies on faculty attitudes toward accommodations based upon multiple independent variables (Bigaj et al., 1999; Bourke et al., 2000; Fonosch & Schwab, 1981; Lewis, 1998; Leyser et al., 1998; Murray et al., 2009; Murray et al., 2008; Rao, 2004; Sowers & Smith, 2004; Vogel et al., 1999; Zhang et al., 2010). Other findings included that non-tenured faculty are more likely to adopt inclusive practices than tenured or tenure-track faculty.

Lombardi and Murray (2011) recommended further research on the differences between tenured and non-tenured faculty. The researchers also reported Education faculty were more likely to incorporate inclusive teaching practices than other colleges or schools. It is also important to note that faculty who received disability-related training were more likely to provide accommodations, minimize barriers, know about campus resources, and spend more time with students. The study emphasized the need for faculty training to help implement UDI on college campuses.

Inclusive Teaching Strategies Inventory. Lombardi et al. (2011) continued their research on faculty attitudes toward UDI and revised the ExCEL survey, titling it the Inclusive Teaching Strategies Inventory (ITSI). Eight subscales of the ExCEL instrument were reduced to six on the ITSI and the new instrument added a multiple response category where faculty could indicate their attitudes as well as in-class actions. The subscales included (a) Multiple Means of Presentation, (b) Inclusive Lecture Strategies, (c) Accommodations, (d) Campus Resources, (e) Inclusive Assessment, and (f) Accessible Course Materials. Validity evidence for the attitude subscales had been previously established through confirmatory factor analysis (CFA) (Lombardi & Murray, 2011; Murray, Gerdes, & Lombardi, 2011). Reliability was confirmed using Cronbach's alpha (Murray et al., 2011). The ITSI is also the only survey known to incorporate principles from the three major educational UD models (e.g., UDI, UDL, UID) (Lombardi et al., 2011).

Results at a public four-year university showed discrepancies between positive faculty attitudes and their actual actions in class. Chi-square analyses were conducted to compare self-reported faculty attitudes and subsequent in-class actions. A significant discrepancy existed between faculty attitudes toward inclusive teaching practices and their actions. However, the researchers noted mixed results where faculty responded positively toward actions more than attitudes on one subscale, while the opposite was discovered on other subscales. For example, a greater proportion of faculty responded with positive attitudes toward providing accommodations and using campus resources than faculty that responded with affirmed action. The opposite was found with regards to the subscales of multiple means of presentation, inclusive lecture strategies, inclusive assessment, and accessible course materials. Multiple regression analyses showed that faculty who received prior disability-related training or had experiences with

disability were more likely to express positive attitudes on three of the six subscales, but significant findings related to faculty actions were not apparent. No significant results were found based upon amount of teaching experience.

This study is important because it not only looked at attitudes, but also actions of faculty with regards to implementing UDI in classrooms. The researchers found mixed results regarding faculty attitudes and actions toward UDI and recommended replication in order to interpret the findings in a broader manner. It was also noted, based upon results, that faculty are more likely to provide accommodations that are easy to implement and do not require much time and effort on the part of faculty. These findings are consistent with other studies (Murray et al., 2008; Nelson et al., 1990).

Other results included female, non-tenured faculty were more likely to have positive attitudes toward Multiple Means of Presentation and Inclusive Assessment. Female faculty were also more likely to take action on Multiple Means of Presentation. Training on disability issues and UDI contributed to positive attitudes but had no real effect on faculty actions. The findings on attitudes based upon sex, teaching status, and prior disability training are consistent with previous studies on faculty attitudes toward academic accommodations (Bigaj et al., 1999; Bourke et al., 2000; Murray et al., 2009; Murray et al., 2008; Sowers & Smith, 2004; Zhang et al., 2010). Lombardi et al. (2011) recommended further study that evaluated possible barriers to faculty implementing inclusive actions, especially when they have positive attitudes toward accommodations and UDI.

Summary

Information reviewed in this chapter revealed that people with disabilities have long faced negative attitudes in many aspects of daily life. Studies show that attitudes vary

significantly based upon age, amount of education, and sex, among other variables Negative attitudes lead toward barriers in all aspects of people with disabilities' lives, including education and employment. Despite postsecondary disability laws, barriers still exist for students with disabilities attending college. Many of these students are not satisfied with requesting academic accommodations from faculty and express a need for better relationships with their instructors. One student commented, "Providing disability documentation is a time consuming, embarrassing process requiring significant planning and coordination by students and staff. Students with learning disabilities learn differently, but we are not less. By requiring us repeatedly to "prove" our deficits to receive the accommodations that best suit our brains is discouraging students" ("Advisory Commission," 2011, p. 45). Traditional academic accommodations can also be time consuming and expensive and researchers are encouraging a more inclusive model that lessens the need for individualized academic adjustments.

Studies that have been conducted on experiences and attitudes of postsecondary students also support a change to a more inclusive model. Students often report negative experiences when negotiating with instructors on accommodations and time is also a factor where students must wait for accommodations to be implemented. Some students with disabilities choose not to disclose their disability due to fear of negative reactions or stigmatization from faculty and peers. Instrumentation is being developed to track achievement outcomes among students with disabilities who are reluctant or unwilling to request accommodations in postsecondary settings. UDI methods used in college classrooms would potentially decrease issues that students with disabilities face with traditional accommodations.

Studies on faculty attitudes toward academic accommodations have revealed differences in this population based on several independent variables. Generally, inconsistent results have

been found when measuring faculty attitudes toward academic accommodations based on teaching status (i.e., full-time, part-time) and very few studies including this variable have been conducted. Amount of teaching experience has not been significantly related to faculty attitudes toward accommodations. Generally, studies have shown faculty within the college of Education or those with prior disability-related training display more positive attitudes toward providing academic accommodations than faculty in other academic disciplines or those with no prior disability-related training.

This chapter also revealed that UDI is becoming more prevalent in higher education and resources are available for faculty who want to learn how to gradually implement UDI principles in the classroom. Many online UDI resources are available for faculty to implement these principles on a self-paced basis. Studies conducted with various postsecondary stakeholders (e.g., students, administrators, DSP) show a desire for postsecondary institutions to move toward UDI training and implementation. However, very few studies have been conducted on faculty attitudes toward UDI. Studies that have been conducted found similar results compared to studies conducted on faculty attitudes toward academic accommodations.

Faculty have generally positive attitudes toward UDI concepts, training and implementation, however some researchers note the existence of barriers such as the lack of time, resources or institutional support. One recent study found more favorable attitudes toward UDI among faculty that were female, non-tenure-track, in the college of Education, or those with prior disability-related training. No studies were found that examined faculty attitudes toward UDI based upon teaching status (i.e., full-time, part-time). The current study did examine differences in faculty groups based upon full-time and part-time status.

Much of the literature reviewed regarding faculty attitudes toward academic accommodations or UDI recommended more training for faculty either on disability legislation, academic accommodations, or UDI implementation. Before UDI training is made available for faculty, it will be helpful for institutions to understand faculty attitudes toward these concepts. Understanding faculty group differences and the institutional climate may be valuable before implementing action to promote widespread change. The present study surveyed faculty and measured attitudes toward UDI and academic accommodations. The current study added to the UDI research agenda and may be used to gain insight on the differences between faculty groups before training on these concepts are pursued.

Often, rehabilitation counselors enter the field of postsecondary education as DSP and help implement academic accommodations for students with disabilities. Historically, DSP have worked with faculty to facilitate accommodations for students and provide information on legal mandates and compliance issues. UDI may provide an opportunity for rehabilitation professionals to help create a positive change on individual college campuses by assisting faculty with creating more inclusive learning environments. Implementing change or training on UDI methods will vary from campus to campus based upon the instructional culture and resources. Climate assessments such as the current study will be helpful in this process.

CHAPTER 3

METHODOLOGY

Research has shown that students with disabilities, along with other historically underrepresented groups, are entering college in increasing numbers (Lombardi & Murray, 2011; McGuire & Scott, 2006; McGuire et al., 2003; Scott et al., 2003b; Raue & Lewis, 2011; Snyder & Dillow, 2010). However, students with disabilities are not remaining in college and graduating at the same rate as their peers without disabilities (Murray et al., 2000). Emphasis is now being put on utilizing evidence-based practices and focusing on student learning in an effort to increase retention and increase positive student outcomes in higher education (Graham, 2005; McGuire et al., 2006; Orr & Hammig, 2009; Ouellett, 2004; Schelly et al., 2011; Tinto; 2004). Students with disabilities have expressed concerns over the traditional method of acquiring academic accommodations from faculty and some report that negative experiences are based upon negative faculty attitudes and inaccessible instructional methods (Cook et al., 2009). UDI may be an effective tool for instruction and inclusion in higher education if faculty adopt and utilize the principles. However, a paucity of research exists on faculty attitudes toward UDI (Lombardi & Murray, 2011). In order for UDI to be effective, faculty must agree to utilize the principles when creating course structures.

The purpose of this study was to measure faculty attitudes toward academic accommodations and UDI as measured by three subscales of the Inclusive Teaching and Strategies Inventory (ITSI). The ITSI survey measures attitudes toward UDI as well as traditional academic accommodations. Results can be used to assess faculty attitudes and perceptions on postsecondary disability issues (Lombardi & Murray, 2011). The ITSI has been field tested and has shown acceptable levels of validity and reliability (Lombardi & Murray,

2011; Lombardi et al., 2011). Not enough is known about faculty attitudes toward UDI. Results should provide valuable information such as possible areas of resistance and insight on how to proceed with training and implementing UDI principles on college campuses. The results of this study will add to literature regarding faculty attitudes toward UDI.

Design of the Study

This study utilized a non-experimental, cross-sectional survey research design. Cross-sectional studies are defined as studies that take place during a single point in time (Trochim & Donnelly, 2007). Survey research design in this study was appropriate because it allowed the researcher to easily sample the population and measure attitudes that would otherwise be unobservable (Alreck & Settle, 2004; Dillman, 2007; Rubin & Babbie, 2001).

The dependent variables in this study came from the ITSI survey and included faculty attitudes toward three out of the six subscales that comprise the ITSI (Lombardi et al., 2011). The three dependent variables included scores on the attitudinal subscales of (a) Multiple Means of Presentation, (b) Inclusive Lecture Strategies, and (c) Accommodations. Participants' attitudes toward these subscales were scored on a Likert scale of 1 (*strongly disagree*) to 7 (*strongly agree*). Mean scores and standard deviations of these dependent variables were quantified based upon the specific independent variables of interest. Nineteen survey items that comprised the dependent variables were scored for the purposes of answering the research questions (Item numbers 2-8, 11, 19, 22-29, 31, and 32) (See Appendix A). See Appendices B and C for a list of specific survey items that comprised the dependent variables, scoring scale information, and all independent variables. The independent variables used in the study included amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of

disability-related training (see Appendix C). No previous studies on faculty attitudes toward UDI have examined differences based upon full-time and part-time teaching status.

Research Questions

The following research questions were addressed in this study:

1. How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Multiple Means of Presentation, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?
2. How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Inclusive Lecture Strategies, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?
3. How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Accommodations, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?

Population and Sampling Frame

Participants in this survey consisted of a non-random sample of faculty at Southern Illinois University Carbondale (SIUC). The sampling frame consisted of a list of names and e-mail addresses of all SIUC faculty. The sampling frame was acquired from SIUC's Human Resources department.

Faculty Population at SIUC

SIUC is a medium-sized public research university which had an enrollment of 19,817 students in the fall 2011 semester (Southern Illinois University Carbondale, 2011a). A sampling frame acquired from SIUC's Human Resources department indicated that 1,626 faculty were employed at the University during the fall 2011 semester. Five faculty members on this sampling frame were removed because they served on the researcher's dissertation committee. Tables 1, 2 and 4 describe frequencies and percentages of the faculty population's demographics such as race/ethnicity, sex, and teaching status (i.e., full-time, part-time).

The colleges and schools at SIUC include (a) Agricultural Sciences, (b) Applied Sciences and Arts, (c) Business, (d) Education and Human Services, (e) Engineering, (f) Liberal Arts, (g) Library Affairs, (h) Mass Communication and Media Arts, (i) Science, (j) School of Law, and (k) School of Medicine (Southern Illinois University Carbondale, 2011a; 2011b.). Table 5 describes the faculty population based upon academic discipline. An *Other* category was created for this study to incorporate faculty in the College of Library Affairs, Graduate School, University College, and the University's Head Start Agency. During the 2012 fiscal year, SIUC's Disability Support Services (DSS) office is currently serving 522 students with disabilities (R. VanPelt, personal communication, February 1, 2012).

Power Analysis

A power analysis was conducted using a free downloadable software called *G*Power 3.1.3*. *G*Power* is used to help determine a sufficient sample size, effect sizes and overall power of a test. The greater the power $(1 - \beta)$ of a test the less likely a Type II error will occur. A Type II error occurs when the null hypothesis is retained when it should be rejected (Keppel & Wickens, 2004). Since 4 tests (i.e., t test, ANOVA) per research question would be conducted,

the Bonferroni procedure was used to control the familywise error rate. An alpha level of .05 was divided by 4 to provide a new alpha significance level of .0125 (Keppel & Wickens, 2004). In order to estimate a sample size, choices for effect size (f = .25), alpha level (α = .0125) and power ($1 - \beta$ = .80) were entered in the *G*Power* program. Since there would be between two and eleven levels of the independent variables in the study, 11 was entered for the number of groups. A total sample size of 363 was estimated.

Instruments

Inclusive Teaching Strategies Inventory (ITSI)

The instrument used was a questionnaire self-report survey titled Inclusive Teaching Strategies Inventory (ITSI) (see Appendix A). With the original author's permission (A. Lombardi, personal communication, July 12, 2011), it was shortened for use in this study to answer the research questions. The ITSI measures postsecondary faculty attitudes with regard to academic accommodations and inclusive learning environments. The survey gathers faculty demographic information, amount of experience with people with disabilities and disability-related training, and then asks faculty to express attitudes toward six subscales including, (a) Multiple Means of Presentation, (b) Inclusive Lecture Strategies, (c) Accommodations, (d) Campus resources, (e) Inclusive Assessment, and (f) Accessible Course Materials. The ITSI is a revision of the Expanding Cultural Awareness of Exceptional Learners (ExCEL) survey utilized by Lombardi and Murray (2011) to measure faculty attitudes toward academic accommodations and UD principles. The ExCEL survey showed evidence of content, convergent and discriminant validity as well as reliability using Cronbach's alpha. The internal consistencies of the factors ranged from .65 - .85 with three of eight factors being below the acceptable .70 criterion

(Lombardi & Murray, 2011; Lombardi et al., 2011). The factors with lower reliability were revised for the ITSI with regard to item text and subscale definition.

Subscales were reduced from eight on the ExCEL survey to six for the ITSI. Lombardi et al. (2011) made these revisions to address the lower reliability scores ($\alpha < .70$) on the original ExCEL survey. The ITSI survey also incorporated themes from all three instructional UD models (e.g., UDI, UID, UDL) (Lombardi et al., 2011). The ITSI is an appropriate example of a survey that not only measures faculty attitudes toward academic accommodations for students with disabilities, but also includes aspects of UDI. Therefore, it was ideal for this study. Appendix B identifies the survey items that comprise the three subscales used as dependent variables in this study. A confirmatory factor analysis was also conducted on the attitudes subscales (Lombardi & Murray, 2011; Murray et al., 2011). The ITSI survey is generally divided into four sections that include demographics, disability experience and training, attitudes and actions, and scenario items. Reliability using Cronbach's alpha on the attitudinal subscales ranged from .70 - .89 (Lombardi et al., 2011).

Revisions to the ITSI for the Current Study. The ITSI was shortened for this study in order to focus on the current research questions regarding faculty attitudes. Therefore, action and scenario items were removed from the survey. Operational definitions on *Disability, Universal Design (UD)* and *Academic Accommodations* were inserted at the beginning of the survey. Since the current study focused on faculty that were currently teaching college-level courses, item number 1 asked respondents if they taught college-level courses. Respondents who answered "No", were automatically exited from the survey.

Items 2 – 34 and 40 – 45 asked respondents to rank their agreement or disagreement to specific statements (e.g., "I believe it's important to arrange extended time on exams for students

who have documented disabilities."). A Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*) was used with a neutral option included (i.e., "I have not thought about this."). The neutral option was added for the current study and was not part of the original ITSI survey. A score of 1 indicated "strongly disagree", 2 indicated "disagree", 3 indicated "somewhat disagree", 4 indicated "I have not thought about this", 5 indicated "somewhat agree", 6 indicated "agree" and 7 indicated "strongly agree". Only 19 of these items were scored to answer the research questions (Items 2-8, 11, 19, 22-29, 31, and 32). Mean scores were calculated for items 2 – 8 which comprised the Accommodations subscale. Mean scores were calculated for items 11 and 24 – 26 which comprised the Inclusive Lecture Strategies subscale. Finally, mean scores were calculated for items 19, 22, 23, 27 – 29, 31 and 32 which comprised the Multiple Means of Presentation subscale.

Items 35 – 39 asked respondents to indicate their level of experience with people with disabilities and disability-related training. Item 38 was revised from the original ITSI providing more choices on how much prior-disability related training faculty had received. An example was also inserted on this item that stated, "For example, a 16-week, 3-credit our college course may include 48 hours of in-class training" (see Appendix A). Items 52 – 59 asked demographic questions regarding sex, ethnicity/race, teaching status (i.e., full-time, part-time), academic discipline, amount of teaching experience, types of courses taught, number of students with disabilities taught, and age. Item 54 regarding teaching status was not part of the original ITSI. Information for the independent variables was gathered on item numbers 38, and 54 – 56.

Marlowe-Crowne Social Desirability Scale (Revised)

The Marlowe-Crowne Social Desirability Scale (MCSDS) was designed to help measure if respondents were providing socially desirable responses on self-report surveys (e.g.,

attitudinal) (Crowne & Marlowe, 1960). The original scale is a 33-item instrument on which respondents provide True or False responses to short social scenarios or statements (e.g., "I have never intensely disliked anyone."). Other researchers created revised, shorter versions of the MCSDS and found they could be used in place of the original scale (Fischer & Fick, 1993; Strahan & Gerbasi, 1972). The current study used a 6-item version of the MCSDS called revised Form X2 ($\alpha = .756$) (Fischer & Fick, 1993). See Appendix A (Item numbers 46 – 51) for the revised Form X2. Correct answers according to the scoring key were worth 1 point.

Scores ranged from 0–6 and were scored using the same scoring key from the original MCSDS (Crowne & Marlowe, 1960). Lower scores are associated with respondents being more truthful on self-report surveys, such as the one used in this study, and less concerned with social approval. Higher scores are associated with respondents that are more likely to provide socially desirable responses. Most respondents score in the middle range where there is an average degree of concern for social desirability and conformity (Crowne & Marlowe, 1960). The scores on the revised Form X2 can be used in correlational analyses with self-report instrument scores (e.g., attitudinal surveys) (Doss & Hopkins, 1998). Permission to use the revised Form X2 was provided by Dr. Kathy Gerbasi.

Data Collection Procedure

Data collection in this study consisted of an electronic survey that was e-mailed to faculty and completed and submitted electronically by respondents. *LimeSurvey*® is a password protected online survey application that was used to create and send the survey to faculty. *LimeSurvey*® is available for SIUC students to use and is supported by the University's Morris Library. Online surveys have become a popular and reliable way to survey individuals. Benefits of using online surveys include less time and cost to administer, fewer chances for error, and

quicker response times from participants (Alreck & Settle, 2004; Dillman, 2007; Rubin & Babbie, 2001). The university that took part in the study was Southern Illinois University Carbondale (SIUC). The entire SIUC faculty population was e-mailed the survey except for the five faculty members that served on the researcher's dissertation committee (N = 1,621). In order to attain the largest sample size possible, procedures were based on Dillman's recommendation of at least five separate contacts with potential participants.

Approval to proceed with the study was acquired from SIUC's Human Subjects Committee. An e-mail was then sent as a pre-notice to faculty explaining that they would receive a link for the survey in the next couple of days (see Appendix F). Two days later after the pre-notice, I sent another e-mail that included the purpose of the study, informed consent, and a link to the survey (see Appendix G). This constituted the second contact. The third contact took place a week after the second contact and consisted of an e-mail reminder to all faculty who had not responded to the second contact (see Appendix H). In an effort to increase participation, the researcher gained permission and attended an SIUC Faculty Senate meeting on November 8, 2011 and handed out a Memorandum about the study to faculty in attendance (see Appendix I). It should be noted that an SIUC faculty strike lasted from November 3–10, 2011. The fourth contact was an e-mail reminder sent two weeks after the third contact and was sent to all non-respondents (see Appendix J). The fifth and final contact was an e-mail reminder to all non-respondents sent two weeks after the fourth contact (see Appendix K). Multiple contacts increase the likelihood that surveys will be answered (Dillman, 2007). At the end of the data collection period, the data collected were exported from *LimeSurvey*® to *SPSS* version 19 statistical software. See Appendix E for the procedural flow chart.

Data Analyses

Data analysis for each research question consisted of descriptive and inferential statistics. Tests included independent samples t tests and one-way analysis of variance (ANOVA). An alpha significance level of .0125 was used for all analyses. ANOVA allows examination of the differences between multiple group sample means as well as measuring two or more independent variables simultaneously (Howell, 1992; Weinfurt, 1995). Tukey's post hoc procedure was used for all post hoc tests completed after significant ANOVA analyses with more than two levels of the independent variable. The post hoc procedure was used to determine exactly which group means were significantly different from one another (Keppel & Wickens, 2004; Dimitrov, 2009). Post hoc procedures are important because they make results more meaningful and provide more insight on specific group differences compared to the overall ANOVA tests. Significant ANOVA tests do not specifically indicate which of the three or more groups are significantly different from one another. Tukey's post hoc comparison can be used when many pairs of means need to be compared (Ramsey,1993). Specifically, the Tukey-Kramer procedure was utilized since sample sizes were unequal (Ramsey, 1993). Effect sizes were calculated to determine practical significance. Omega-squared was used to calculate the effect size for ANOVA tests, while Cohen's d was used to calculate the effects size for independent samples t tests and post hoc tests. SIUC's Educational Psychology Statistics Lab and *SPSS* version 19 statistical software were utilized to assist in analyzing the data.

Research Question 1: *How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Multiple Means of Presentation, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?* This question was answered by conducting one independent

samples t test on the dichotomous, independent variable of teaching status (i.e., full-time, part-time). Three ANOVA tests were conducted for independent variables with more than two levels (i.e., amount of teaching experience, academic discipline, amount of disability-related training). Significant ANOVA tests were followed with the Tukey-Kramer post hoc procedure.

Research Question 2: *How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Inclusive Lecture Strategies, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?* This question was answered by conducting one independent samples t test on the dichotomous, independent variable of teaching status (i.e., full-time, part-time). Three ANOVA tests were conducted for independent variables with more than two levels (i.e., amount of teaching experience, academic discipline, amount of disability-related training). Significant ANOVA tests were followed with the Tukey-Kramer post hoc procedure.

Research Question 3: *How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Accommodations, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training?* This question was answered by conducting one independent samples t test on the dichotomous, independent variable of teaching status (i.e., full-time, part-time). Three ANOVA tests were conducted for independent variables with more than two levels (i.e., amount of teaching experience, academic discipline, amount of disability-related training). Significant ANOVA tests were followed with the Tukey-Kramer post hoc procedure.

CHAPTER 4

RESULTS

Results in this chapter include participants' response rate, participant demographics, test assumptions, and effect sizes. Pearson correlation results and all research question results are included in this chapter as well. For each research question, results from independent samples t tests and ANOVA tests are presented. Results from Tukey's post hoc tests were also included following the results of significant ANOVA tests. Post hoc power analyses are also included and were calculated using the software *G*Power* 3.1.3.

Response Rate

The survey was e-mailed to 1,621 SIUC faculty from a sampling frame provided by the Human Resources department. Five faculty members that were part of the researcher's dissertation committee were not sent the survey. A total of 122 faculty members opted out of the survey. A total 530 faculty members responded to the survey. Of these 530, 33 responses had largely incomplete data and were omitted from the study. Out of the 497 fully completed surveys, 98 of these respondents indicated a "No" response to item number 1 of the survey which immediately exited them from completing the rest of the survey. Item number 1 asked respondents if they taught college-level courses. An additional 18 respondents were omitted from the study due to not responding to one or more items that comprised the dependent variables. Therefore, 381 surveys were usable which gave a 23.5% response rate.

Demographics

The independent variables in this study included amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training. Tables 3 – 6 describe the frequencies of the independent variables based upon participants'

responses. Female faculty respondents included 40.9% (N = 156) while male faculty included 53.3% (N = 203) of all respondents (see Table 2). Twenty-two respondents did not indicate their sex. The mean age of respondents was 48.85 years (N = 350). Thirty-one respondents did not indicate their age. The mean amount of teaching experience was 13.66 years (N = 365). Sixteen respondents did not indicate their amount of teaching experience. See Table 1 for respondents' racial/ethnic background.

Assumptions

The assumptions for t tests and ANOVA tests are the same (Norman, 2010). The assumption of normality was fulfilled by examining histograms of mean scores of the three dependent variables as well as skewness and kurtosis values. Histograms can be used to examine for normality and outliers (Miller, McKenna, & McKenna, 1998). The distributions looked approximately normal and larger sample sizes (N = 381) help with meeting the normality assumption (Norman, 2010). The central limit theorem supports the notion that once sample sizes reach 5-12 participants, the assumption of normality is met (Keppel & Wickens, 2004; Norman, 2010). Skewness values for the Multiple Means of Presentation (MMP), Inclusive Lecture Strategies (ILS), and Accommodations subscales were -1.026, -1.044, and -1.035 respectively. Kurtosis values were 1.445, 1.661, and 1.312 respectively. In some cases, the violation of the assumption of normality may not significantly influence study results (Howell, 1992). Keselman et al. (1998) reported that violations of the normality assumption may not increase the chances of a Type I error, however, the ANOVA F test is very sensitive to population variance differences.

Homogeneity of variance was tested using the Fmax statistic (Tabachnick & Fidell, 2007). Any Fmax statistic over 10 was considered a violation of the homogeneity of variance

assumption (Tabachnick & Fidell, 2007). Fmax statistics regarding Teaching Status and the MMP, ILS, and Accommodations subscales were 1.38, 1.24, and 1.01 respectively. Fmax statistics regarding Amount of Teaching Experience were 1.48, 1.4, and 1.62 respectively. Fmax statistics regarding Amount of Prior Disability-Related Training Experience were 2.98, 2.22, and 2.17 respectively. Fmax statistics regarding Academic Discipline were 6.19, 11.18, and 2.62 respectively. The assumption of homogeneity of variance was violated regarding Academic Discipline and the ILS subscale due to an Fmax value of 11.18. Welch's ANOVA was used instead for the data analysis on the Academic Discipline and ILS subscale. Welch's ANOVA is an alternative test that can be used when the homogeneity of variance assumption has been violated (Keppel & Wickens, 2004). Independence of observations was assumed in this study due to the fact that individual e-mails were sent to faculty members. Data were examined for outliers, however no scores were more than three standard deviations from the mean (Keppel & Wickens, 2004). Therefore no suspected outliers were removed or modified.

Effect Sizes

Effect sizes were calculated in order to help distinguish between statistical and practical significance of all test groups. Effect sizes are important because they can explain how much of the variability in the dependent variable can be explained by the independent variables (Keppel & Wickens, 2004). Researchers recommend effect sizes be routinely reported (Keselman et al., 1998). Omega-squared was used to determine effect sizes for all ANOVA tests. Omega-squared effect size categories include .0099 (small), .0588 (medium), and .1379 (large) (Kirk, 1996). Omega-squared allows researchers to calculate the percentage of variability in the dependent variable that can be attributed to levels of the independent variable (Tabachnick & Fidell, 2007). Cohen's d was used to determine effect sizes for all t tests and post hoc tests. Cohen's d is

expressed in standard deviation units and is calculated by subtracting the largest and smallest means, divided by the common standard deviation (Tabachnick & Fidell, 2007). Effect size categories include .20 (small), .50 (medium), and .80 (large) (Cohen, 1988). Cohen's d effect sizes were calculated using *G*Power* 3.1.3. Omega-squared effect sizes were calculated by hand (Tabachnick & Fidell, 2007).

Pearson Correlation Results

A Pearson correlation test between the mean scores of the subscales and scores on the Marlowe-Crowne Social Desirability Scale was performed. 364 respondents answered all the MCSDS items (Item numbers 46-51). A Pearson correlation was performed with an alpha significance level of .05. Scatter plots were observed and no linear relationship was seen. The Pearson correlation is based upon a scale of ± 1 where the closer to -1 or +1, the stronger the relationship between two variables (Howell, 1992). A non-linear, weak, negative relationship existed between scores on the MCSDS and the Accommodations subscale, r = -.013. A non-linear, weak, positive relationship existed between scores on the MCSDS and the Inclusive Lecture Strategies subscale, r = .048. A non-linear, weak, positive relationship existed between scores on the MCSDS and the Multiple Means of Presentation subscale, r = .128. Based upon the Pearson correlation test results, it was concluded that respondents did not necessarily answer items based upon what they thought might be socially desirable.

Research Question 1 Results

How do attitudes of teaching faculty at a Midwestern university as measured by the ITSI subscale of Multiple Means of Presentation, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training? The purpose of this question was to explore faculty attitudinal differences in the

various levels of the independent variables regarding mean scores on the Multiple Means of Presentation (MMP) subscale. Table 7 outlines the results from the independent samples t test. Tables 8 and 9 outline the results from the ANOVA tests for research question one.

No significant findings were found based on Teaching Status (i.e., full-time, part-time) and MMP scores, $t(374) = -1.711$, $p = .088$, $d = .23$. The effect size was considered small. A post hoc power analysis calculated a value of .55, therefore the probability of rejecting the null hypothesis was low. No significant difference was found on the ANOVA test regarding scores on the MMP subscale and Amount of Teaching Experience, $F(2, 362) = 3.5$, $p = .031$, *omega-squared* = .014. The effect size was small. A post hoc power analysis calculated a value of .64, therefore the probability of rejecting the null hypothesis was considered low. An ANOVA test on Academic Discipline and scores on the MMP subscale produced significant results, $F(10, 363) = 6.24$, $p = .000$, *omega-squared* = .122. The effect size was large. A post hoc power analysis calculated a value of .99, therefore the probability of rejecting the null hypothesis was high.

Tukey's post hoc procedure found significant differences when comparing individual colleges and schools. The College of Applied Sciences & Arts (M = 5.9) had statistically significant higher scores compared to the College of Science (M = 5.3), $p = .011$, $d = .78$. The effect size was considered medium. The College of Education (M = 6.16) had statistically significant higher scores compared to the Liberal Arts (M = 5.5), $p = .000$. $d = .87$ and Science (M = 5.3), $p = .000$, $d = 1.14$. The effect sizes were both large. The College of Mass Communication & Media Arts (M = 6.3) had statistically significant higher scores compared to the College of Science (M = 5.3), $p = .002$, $d = 1.33$. The effect size was large.

An ANOVA test on Amount of Disability-Related Training Experience and scores on the MMP subscale produced significant results, $F(4, 375) = 6.608$, $p = .000$, *omega-squared* = .056.

The effect size was medium. A post hoc power analysis calculated a value of .98, therefore the probability of rejecting the null hypothesis was high. Tukey's post hoc procedure found that faculty with more than 48 hours of disability-related training (M = 6.2) had statistically significant higher scores compared to faculty that had no prior disability-related training (M = 5.65), p = .000, d = .70. A medium effect size was calculated.

Research Question 2 Results

How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Inclusive Lecture Strategies, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training? The purpose of this question was to explore the attitudinal differences in the various levels of the independent variables regarding mean scores on the Inclusive Lecture Strategies (ILS) subscale. Table 7 outlines the results from the independent samples t test. Tables 10 and 11 outline the results from the ANOVA tests for research question two.

No significant findings were found with regard to Teaching Status (i.e., full-time, part-time) and scores on the ILS subscale, $t(374) = -1.213$, p = .226, d = .15. The effect size was small. A post hoc power analysis calculated a value of .31, therefore the probability of rejecting the null hypothesis was low. No significant findings were found with regard to Amount of Teaching Experience and scores on the ILS subscale, $F(2, 362) = .201$, p = .818, *omega-squared* = .004. The effect size was small. A post hoc power analysis calculated a value of .08, therefore the probability of rejecting the null hypothesis was low. The assumption of homogeneity of variance was violated with regard to Academic Discipline and scores on the ILS subscale. Welch's ANOVA was appropriate to use as an alternative (Keppel & Wickens, 2004). Welch's ANOVA does not assume homogeneity of variances. The Welch's ANOVA test on Academic

Discipline and scores on the ILS subscale found no significant results, *Welch's F*(10, 40.93) = 1.96, *p* = .063. No significant findings were found with regard to Amount of Disability-Related Training Experience and their scores on the ILS subscale, *F*(4, 375) = 2.23, *p* = .065, *omega-squared* = .013. The effect size was small. A post hoc power analysis calculated a value of .64, therefore the probability of rejecting the null hypothesis was low.

Research Question 3 Results

How do attitudes of teaching faculty at a Midwestern university, as measured by the ITSI subscale of Accommodations, differ based upon amount of teaching experience, teaching status (i.e., full-time, part-time), academic discipline, and amount of disability-related training? The purpose of this question was to explore the attitudinal differences in the various levels of the independent variables regarding mean scores on the Accommodations subscale. Table 7 outlines the results from the independent samples t test. Tables 12 and 13 outline the results from the ANOVA tests for research question three.

No significant findings were found based on Teaching Status (i.e., full-time, part-time) and Accommodations subscale scores, *t*(374) = .141, *p* = .888, *d* = .01. The effect size was small. A post hoc power analysis calculated a value of .06, therefore the probability of rejecting the null hypothesis was low. A significant difference was found on the ANOVA test regarding scores on the Accommodations subscale and Amount of Teaching, *F*(2, 362) = 5.230, *p* = .006, *omega-squared* = .023. The effect size was small. A post hoc power analysis calculated a value of .82, therefore the probability of rejecting the null hypothesis was high. Tukey's post hoc procedure found significant differences when comparing faculty groups based upon amount of teaching. Faculty with 13 or more years of teaching experience (M = 6.03) had statistically significant

higher scores compared to faculty with 0-6 years of teaching experience (M = 5.68), p = .009, d = .37. The effect size was small.

An ANOVA test on Academic Discipline and scores on the Accommodations subscale produced significant results, $F(10, 363) = 3.058$, p = .001, *omega-squared* = .052. The effect size was medium. A post hoc power analysis calculated a value of .97, therefore the probability of rejecting the null hypothesis was high. Tukey's post hoc procedure found significant differences when comparing individual colleges and schools. The College of Education (M = 6.18) had statistically significant higher scores compared to the College of Applied Sciences & Arts (M = 5.42), p = .000, d = .82. The effect size was large.

An ANOVA test on Disability-Related Training Experience and scores on the Accommodations subscale produced significant results, $F(4, 375) = 4.23$, p = .002, *omega-squared* = .033. The effect size was small. A post hoc power analysis calculated a value of .91, therefore the probability of rejecting the null hypothesis was high. However, a Tukey's post hoc procedure found no significant results when comparing the five levels of the independent variable.

CHAPTER 5

DISCUSSION

The purpose of the current study was to measure faculty attitudes toward UDI and academic accommodations as measured by three subscales included in the Inclusive Teaching Strategies Inventory (ITSI) survey. The previous chapter reviewed results from the data analyses. This chapter will discuss research question findings, implications for rehabilitation professionals, and recommendations for future research. Limitations of the current study will also be discussed. The response rate (23.5%) of this study was comparable to response rates of other faculty attitudinal studies (Bourke et al., 2000; Leyser, Vogel, Wyland, & Brulle, 1998; Lombardi & Murray, 2011; Lombardi et al., 2011: Murray e t al., 2008; Murray, Wren, Stevens, & Keys, 2009b; Vogel et al., 1999; Vogel, Holt, Sligar, & Leake, 2008).

Research Question 1 Findings

The purpose of research question one was to examine faculty attitudinal differences as they relate to presenting course information in multiple ways. Levels of each independent variable were compared in order to examine these differences. No significant findings were found between full-time and part-time faculty. These results are consistent with studies conducted by Nelson et al. (1990) and Vogel et al. (1999), but inconsistent with Bourke et al. (2000). No significant findings were found regarding Amount of Teaching Experience. This finding is consistent with previous studies on faculty attitudes toward accommodations (Vogel el al., 1999), UDI (Lombardi et al., 2011), and students with disabilities (Kraska, 2003), where no significant results were found based upon amount of teaching experience.

The College of Applied Sciences & Arts (ASA) had a statistically significant higher score compared to the College of Science. No previous studies were found indicating specific

differences between colleges of ASA and Science in the academic accommodations or UDI literature. Often researchers combine colleges of arts and sciences to create fewer levels of the independent variable (Lombardi & Murray, 2011; Nelson et al., 1990; Rao, 2004). More study is needed on specific differences between these two colleges on the SIUC campus. The College of Education had statistically significant higher scores compared to the Colleges of Liberal Arts, and Science. These findings are consistent with previous studies on faculty attitudes toward UDI and accommodations (Fonosch & Schwab, 1981; Lewis, 1998; Leyser, 1998; Lombardi & Murray, 2011; Murray et al., 2008; Nelson et al; Rao, 2004; Vasek, 2005; Vogel et al., 1999).

The College of Mass Communication & Media Arts (MCMA) had statistically significant higher scores compared to the College of Science No previous studies have reported significant differences between MCMA colleges and Liberal Arts and Sciences. The College of MCMA had the highest mean score on the MMP subscale (M = 6.3). This could be due to the fact that the college has several departments where mass communication and various presentation methods would be fundamental to academic programs. Some of the majors in the SIUC College of MCMA include: Radio-Television, Journalism, and Cinema-Photography. It is understandable that faculty in this college present information to students in multiple ways and therefore would indicate significantly higher levels of agreement on the MMP subscale. Further study on the College of MCMA is recommended to investigate faculty use of multiple means of presentation.

Faculty with more than 48 hours of disability-related training had a statistically significant higher mean score than faculty who had no prior disability-related training. This finding is consistent with previous studies on faculty attitudes toward UDI and accommodations (Bigaj et al., 1999; Bourque, 2004; Lombardi & Murray, 2011; Murray et al., 2009; Murray et al., 2008; Rao, 2002; 2003; Sowers & Smith, 2004; Zhang et al., 2010). These studies showed

that more disability-related knowledge and training is associated with more favorable attitudes toward these concepts. Lombardi et al. (2011) found that prior disability-related training was a significant predictor of scores on the MMP subscale.

Research Question 2 Findings

The purpose of research question two was to examine faculty attitudinal differences as they relate to using in-class inclusive lecture strategies. Levels of each independent variable were compared in order to examine these differences. No statistically significant findings were found in relation to mean scores on the Inclusive Lecture Strategies (ILS) subscale. Overall, the ILS subscale had the highest mean score out of all the ITSI subscales included in the study (M = 6.20). The reason for no significant findings and a higher level of agreement might be due to the subscale items being seemingly easy to implement in classroom settings (Item numbers 11, 24 – 26). The items also reflect strategies that would not be very time consuming for faculty and would be less likely to fundamentally alter the intent of an academic program or course. These findings are reflected in previous studies on faculty attitudes toward UDI and accommodations.

Lombardi et al. (2011) also found that the mean score on the ILS subscale was higher than any other subscale. The researchers discussed their findings and reported that faculty are more agreeable to practices that require the least amount of modification to their current practices. Inconsistent with the current study, Lombardi et al (2011) found that prior disability-related training was a significant predictor of scores on the ILS subscale. Other studies found faculty are more willing to provide minor accommodations as opposed to major accommodations (Lombardi & Murray, 2011; Murray et al., 2008; Nelson et al., 1990; Vogel et al., 1999). Minor accommodations reported in the literature often included recording lectures or extended time on

exams. Major course changes or accommodations may include alternate exam choices, course substitutions, or reduced course requirements (Lombardi et al).

Research Question 3 Findings

The purpose of research question three was to examine faculty attitudinal differences as they relate to providing traditional academic accommodations to students with disabilities. Levels of each independent variable were compared in order to examine these differences. No significant findings were found between full-time and part-time faculty. Faculty with 13 or more years of teaching experience had a statistically significant higher subscale score compared to faculty with 0-6 years of teaching experience. The difference between these two groups could be attributed to faculty with more teaching experience having more knowledge and practical experience with accommodating students with disabilities. Therefore, faculty with 13 or more years of teaching experience might place more importance on providing academic accommodations. These findings are inconsistent with previous studies (Kraska, 2003; Lombardi et al., 2011; Vogel et al., 1999) where no significant results were found based on amount of teaching experience.

The College of Education had a statistically significant higher subscale score compared to the College of Applied Sciences & Arts (ASA). This finding is consistent with previous literature that shows colleges of Education generally have more favorable attitudes toward accommodations compared to colleges of Arts and Sciences (Fonosch & Schwab, 1981; Lewis, 1998; Leyser, 1998; Lombardi & Murray, 2011; Murray et al., 2008; Nelson et al., 1990; Rao, 2004; Vasek, 2005; Vogel et al., 1999). Comparatively, more significant post hoc findings were noted on the MMP subscale of research question one than on the Accommodations subscale.

This could be due to faculty respondents being extremely familiar with academic accommodations at this specific university.

More research is needed on the College of ASA at SIUC. The College of ASA is comprised of diverse academic departments that include Schools of Architecture, Allied Health, Information Systems and Applied Technologies, and Transportation. It would be helpful to know more about the differences between the schools in the College of ASA in order to gain more insight regarding differences between the departments. For example, it is possible that faculty in the Physician Assistant program in the School of Allied Health or Aviation program in the School of Transportation are less willing to provide accommodations because they believe it will fundamentally alter the academic integrity of their courses or programs. This would explain lower scores on the Accommodations subscale compared to higher scores on the MMP subscale. Studies have shown that faculty in the health field do have concerns about patient safety when it comes to individuals with disabilities requesting accommodations (Sowers & Smith, 2004). The aviation industry is also known to challenge disability accommodations based upon passenger safety concerns (Friedland, 1999). However, it should be noted that the SIUC School of Medicine did not have significantly lower mean subscale scores compared to other disciplines.

An ANOVA test on Disability-Related Training Experience and scores on the Accommodations subscale was significant. The post hoc test found no significant differences when comparing the groups. This finding is consistent with previous studies on faculty attitudes toward UDI and accommodations (Bigaj et al., 1999; Bourque, 2004; Lombardi & Murray, 2011; Lombardi et al., 2011; Murray et al., 2009; Murray et al., 2008; Rao, 2003, 2004; Sowers & Smith, 2004; Zhang et al., 2010) where significant differences were found based upon prior disability-related training.

Summary of Findings

On average, all respondents had favorable attitudes toward the ITSI subscales of Multiple Means of Presentation (MMP) (M = 5.77), Inclusive Lecture Strategies (ILS) (M = 6.2), and Accommodations (M = 5.85). Lombardi et al. (2011) found the same results where the ILS subscale had the highest mean subscale score followed by Accommodations and MMP subscales. It was also found that all statistically significant findings between the levels of the independent variables were in the *agree* range. Vogel et al. (1999) also found that, on average, faculty had favorable attitudes toward academic accommodations. The positive attitudes indicated on the subscales in the current study may be due to the historical inclusiveness of students with disabilities at SIUC. Decades before the passage of the Rehabilitation Act or ADA, SIUC was one of the first college campuses to provide access for and welcome students with disabilities. The Rehabilitation Institute was one of the first of its kind in the United States and the program continues to have nationally-ranked academic programs. Inclusion of people with disabilities is part of the institutional culture at SIUC and the positive attitudes of study respondents may reflect this culture.

There are also various programs on campus that support the needs of students with disabilities such as Disability Support Services (DSS) and the fee-for-service Achieve Program. While most institutions in the U.S. have some form of a DSS office, not all have an additional fee-for-service program that provides even more supplemental academic support for students with disabilities. Study respondents may be aware or have worked with one of these programs on campus. A large majority of respondents indicated comfortableness regarding academic accommodations. 88% of respondents taught students with disabilities in the past five years. 87% understood their responsibilities to facilitate accommodations and 85% were confident in their

ability to accommodate students. Fewer significant findings were noted on the Accommodations subscale compared to the MMP subscale. This may also be due to respondents having extensive knowledge and experience with providing accommodations to students with disabilities at this institution.

No significant findings were noted on any of the subscales comparing full-time and part-time teaching status. No studies on faculty attitudes toward UDI had compared these two groups. Lombardi and Murray (2011) only included full-time faculty in their study because they assumed they had the most impact on teaching. Lombardi et al. (2011) included faculty teaching half-time or above but did not look at specific differences between full-time and part-time faculty. Other faculty attitudinal studies comparing full-time and part-time faculty found inconsistent results (Bourke et al., 2000; Nelson et al., 1990; Vogel et al., 1999). No significant differences in any levels of the independent variables were found based upon ILS subscale scores. Significant findings were noted with regard to amount of teaching experience on the Accommodations subscale. Faculty with 13 or more years of teaching experience had significantly higher scores than faculty with 0-6 years of teaching on the Accommodation subscale. These findings are inconsistent with previous studies (Kraska, 2003; Lombardi et al., 2011; Vogel et al., 1999).

Significant differences were noted with academic discipline on the MMP and Accommodations subscale. Regarding the MMP subscale, the colleges of ASA, Education, and MCMA had more favorable views compared to the colleges of Science and Liberal Arts. Regarding the Accommodations subscale, the college of Education had more favorable views compared to the college of ASA. Previous studies show more favorable attitudes in the college of Education compared to other colleges (Fonosch & Schwab, 1981; Lewis, 1998; Leyser, 1998; Lombardi & Murray, 2011; Murray et al., 2008; Nelson et al; Rao, 2004; Skinner, 2007; Vasek,

2005; Vogel et al., 1999). However, no previous studies have shown that colleges of ASA and MCMA have more favorable attitudes compared to a college of Science. Often researchers will combine colleges to lessen the levels of the independent variables. The current study did not combine colleges, but looked at each of the eleven SIUC colleges individually. Significant findings were noted with regard to amount of disability-related training. Those faculty with more than 48 hours of training had a significantly higher mean scores on the MMP subscale than those with no prior training. Although an ANOVA test was significant regarding amount of disability-related training, a post hoc test found no significant group differences.

Limitations

Limitations existed in this study. The study relied on self-reported data and some respondents may have provided socially desirable responses that did not reflect their true beliefs. Confidentially was assured to all respondents to lessen this possibility. Approximately one-quarter of the SIUC faculty population completed the survey and respondents may have participated because they were specifically interested in the study topic. This may be another reason why all mean subscale scores fell within the *agree* range. A large majority of faculty did not participate in the study. Another limitation is that the study is quantitative only. Lombardi and Murray (2011) suggested combining quantitative findings with further qualitative research. The study took place at one university therefore it would be difficult to generalize the findings to other postsecondary institutions. However, results from this study specifically regarding academic discipline (e.g., College of Education) and prior disability-related training are consistent with previous studies on faculty attitudes toward academic accommodations and UDI.

Implications for Practice

Results of the current study may be used to add to the discussion of UDI in higher education as well as plan for targeted training with faculty on UDI methods. Rehabilitation professionals, including rehabilitation counselors work in postsecondary settings, often as DSP. DSP and other postsecondary stakeholders may be able to use the information from this study when planning on how and where to implement UDI on specific campuses. Examining differences between faculty groups may prove useful in determining where the most training and effort would be needed in order to increase faculty knowledge and promote inclusive teaching practices. This study provided specific differences between groups of faculty on the SIUC campus. Results could be used for targeted training in different areas on campus. Training on the SIUC campus regarding UDI implementation is possible and many respondents expressed interest. Over 50% of respondents were interested in training topics such as UDI, accommodations, and campus Disability Support Services. 42% were not confident in their understanding of Universal Design and an additional 16% reported that they had never thought about the concept. It may be possible to work with other resources on campus (e.g., Center for Teaching Excellence) to develop training materials and engage SIUC faculty more regarding UDI concepts.

Results from the study could also be used to share with administrators or campus faculty resource centers to provide insight on the differences between these groups. On average, the faculty in this study showed favorable attitudes toward UDI and accommodations. However, differences based upon amount of teaching experience, academic discipline, and amount of prior-disability related training existed. Training for faculty on UDI concepts may be beneficial for faculty and a diverse student body. Educating faculty on these concepts has the potential to

positively change attitudes, increase confidence in utilizing UDI techniques, and increase the chances that faculty will utilize UDI techniques in class. Postsecondary stakeholders such as DSP, administrators and faculty must decide what type of information dissemination process is right for their institution and training materials to use. Various methods of faculty training are possible including workshops, online self-paced resources, new faculty orientation sessions, and campus committees with departmental representatives, among others.

UDI may be a viable method for faculty to help increase student learning as well as the retention and graduation rates of students with disabilities. It also has the potential to lower costs by lessening the need for academic accommodations. Technology is becoming more prevalent and easier to use, allowing faculty to deploy instructional techniques that are accessible for all. Faculty will need assistance from DSP and their institutions to slowly start making changes in the way they conduct their courses. The Advisory Commission on Accessible Instructional Materials has recently recommended to the U.S. Congress that federal grant funds be made available for postsecondary institutions to provide faculty and staff professional development. Funds would be used specifically to study best practices in providing accessible instructional materials for all ("Advisory Commission," 2011). Opportunities like these will allow rehabilitation professionals, faculty and postsecondary institutions to further level the educational playing field for students with disabilities.

Recommendations for Future Research

Future research on UDI is recommended in order to further understand the potential benefit in educational institutions. Replication of the current study is recommended at other institutions due to the paucity of research on faculty attitudes toward UDI. Similar studies could include comparisons of faculty attitudes at different institutions (e.g., private versus public).

Although not utilized for this study, the ITSI also measures faculty in-class actions in addition to attitudes. A focus on departmental differences within individual colleges is also recommended due to the large diversity in academic disciplines that can be found within one college at an institution. Specifically at SIUC, it is recommend that further UDI research focus on differences within the Colleges of Liberal Arts and ASA. These two colleges have extremely diverse academic disciplines within the colleges and significant results were found when compared to other colleges.

In addition to attitudinal studies such as this one, future studies could focus on creating UDI training materials and the results of UDI training with faculty. After widespread UDI training at SIUC, an instrument such as the ITSI could be administered to see if training had any effect on faculty attitudes. Qualitative interviewing of faculty or conducting case studies would also help to provide more insight into the differences among postsecondary faculty and their attitudes toward UDI. For example, the College of MCMA at SIUC had the highest score on the MMP subscale ($M = 6.3$). Interviews could be conducted with faculty in this college to gain insight on teaching methods used to present information in multiple ways. This information could then be disseminated to other colleges on campus or be used when creating training materials.

The current study was rooted in access for people with disabilities and participants were given operational definitions specifically focused on disability. It is recommended that instruments similar to the ITSI be developed that omit disability-related language. This should be possible since the focus of UDI is on all diverse learners.

Table 1

Frequency and Percentages of Faculty's Racial/Ethnic Background

Race/Ethnicity	Population		Sample	
	N	Percentage	N	Percentage
Am. Indian/Alaskan Native	5	0.3	2	0.5
Asian	190	11.7	23	6.0
Black/African Am.	99	6.1	14	3.7
Hispanic/Latino(a)	48	3.0	9	2.4
Native Hawaiian/Other Pacific Islander	2	0.1	1	0.3
Two or More Races	9	0.6	9	2.5
White	1268	78.2	300	78.7
Declined to Report	-	-	23	6.0
Total	1621	100.0	381	100.0

Table 2

Frequency and Percentages of Faculty's Sex

Sex	Population		Sample	
	N	Percentage	N	Percentage
Female	710	43.8	156	40.9
Male	911	56.2	203	53.3
No response	-	-	22	5.8
Total	1621	100.0	381	100.0

Table 3

Frequency and Percentages of Respondents' Amount of Teaching Experience

Teaching Experience	N	Percentage
0 – 6 years	106	27.8
7 – 12 years	97	25.5
13+ years	162	42.5
No response (Not used in analyses)	16	4.2
Total	381	100.0

Table 4

Frequency and Percentages of Faculty's Teaching Status (i.e., full-time, Part-time)

Teaching Status	Population		Sample	
	N	Percentage	N	Percentage
Full-Time Faculty	1071	66.1	306	80.3
Part-Time Faculty	550	33.9	70	18.4
No response (Not used in analyses)	-	-	5	1.3
Total	1621	100.0	381	100.0

Table 5

Frequency and Percentages of Faculty's Academic Discipline

Academic Discipline	Population		Sample	
	N	Percentage	N	Percentage
Agricultural Sciences	59	3.6	15	3.9
Applied Sciences & Arts	180	11.1	50	13.1
Business	46	2.8	13	3.4
Education	310	19.1	92	24.1
Engineering	66	4.1	15	3.9
Liberal Arts	298	18.4	91	23.9
Mass Comm. & Media Arts	49	3.0	13	3.4
Science	124	7.6	39	10.2
School of Law	39	2.4	8	2.1
School of Medicine	380	23.4	35	9.2
Other	70	4.3	3	0.8
No response (Not used in analyses)	-	-	7	1.8
Total	1621	100.0	381	100.0

Table 6

Frequency and Percentages of Respondents' Amount of Disability-Related Training Experience

Disability-Related Training	N	Percentage
No Training	261	68.5
>1-10 Hours	43	11.3
11-23 Hours	19	5.0
24-48 Hours	11	2.9
More than 48 Hours	46	12.1
No response (Not used in analyses)	1	0.2
Total	381	100.0

Table 7

Independent Samples T Tests Regarding Teaching Status (i.e., full-time, Part-time)

Teaching Status	DV	N	M	SD	df	t	p
Full-time	MMP	306	5.74	.829	374	-1.711	.088
	ILS	306	6.18	.680	374	-1.213	.226
	Accommodations	306	5.85	.955	374	.141	.888
Part-time	MMP	70	5.92	.704	374	-1.711	.088
	ILS	70	6.29	.759	374	-1.213	.226
	Accommodations	70	5.84	.960	374	.141	.888

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

Table 8

ANOVA Tests for Multiple Means of Presentation and Amount of Teaching Experience and Disability-Related Training

Teaching Experience	N	M	SD	df	F	p
0-6 years	106	5.86	.724	2	3.5	.031
7-12 years	97	5.86	.783	2		
13+ years	162	5.63	.882	2		
Disability-Related Training	**N**	**M**	**SD**	**df**	**F**	**p**
No Training	261	5.65	.824	4	6.608	.000*
>1-10 Hours	43	5.84	.764			
11-23 Hours	19	6.09	.477			
24-48 Hours	11	6.14	.606			
More than 48 Hours	46	6.20	.628			

*Note. *Significant at alpha level .0125*

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

Table 9

ANOVA Test for Multiple Means of Presentation and Academic Discipline

Academic Discipline	N	M	SD	df	F	p
Agricultural Sciences	15	5.77	.610	10	6.24	.000*
Applied Sciences & Arts	50	5.90	.617			
Business	13	5.40	1.12			
Education & Human Services	92	6.16	.567			
Engineering	15	5.78	1.006			
Liberal Arts	91	5.50	.913			
Other	3	5.75	.450			
Mass Communication & Media Arts	13	6.31	.571			
Science	39	5.30	.835			
School of Law	8	5.79	.633			
School of Medicine	35	5.78	.721			

*Note. *Significant at alpha level .0125*

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

Table 10

ANOVA Tests for Inclusive Lecture Strategies and Amount of Teaching Experience and Disability-Related Training

Teaching Experience	N	M	SD	df	F	p
0-6 years	106	6.20	.748	2	.201	.818
7-12 years	97	6.24	.631			
13+ years	162	6.19	.708			
Disability-Related Training	**N**	**M**	**SD**	**df**	**F**	**p**
No Training	261	6.15	.714	4	2.23	.065
>1-10 Hours	43	6.22	.628			
11-23 Hours	19	6.32	.589			
24-48 Hours	11	6.11	.839			
More than 48 Hours	46	6.46	.562			

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

Table 11

Welch's ANOVA Test for Inclusive Lecture Strategies and Academic Discipline

Academic Discipline	N	M	SD	df	F	p
Agricultural Sciences	15	6.08	.540	10	1.96	.063
Applied Sciences & Arts	50	6.20	.552			
Business	13	6.23	.976			
Education & Human Services	92	6.42	.614			
Engineering	15	6.10	.565			
Liberal Arts	91	6.06	.706			
Other	3	6.58	.381			
Mass Communication & Media Arts	13	6.42	.503			
Science	39	6.07	.899			
School of Law	8	5.78	1.277			
School of Medicine	35	6.25	.552			

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

Table 12

ANOVA Tests for Accommodations and Amount of Teaching Experience and Disability-Related Training

Teaching Experience	N	M	SD	df	F	p
0-6 years	106	5.68	1.057	2	5.230	.006*
7-12 years	97	5.75	1.009			
13+ years	162	6.03	.828			
Disability-Related Training	**N**	**M**	**SD**	**df**	**F**	**p**
No Training	261	5.72	.993	4	4.23	.002*
>1-10 Hours	43	6.01	.764			
11-23 Hours	19	6.21	.769			
24-48 Hours	11	6.32	.673			
More than 48 Hours	46	6.17	.910			

*Note. *Significant at alpha level .0125*

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

Table 13

ANOVA Test for Accommodations and Academic Discipline

Academic Discipline	N	M	SD	df	F	p
Agricultural Sciences	15	5.40	.915	10	3.058	.001*
Applied Sciences & Arts	50	5.42	1.092			
Business	13	5.69	.979			
Education & Human Services	92	6.18	.885			
Engineering	15	6.14	.732			
Liberal Arts	91	5.83	.892			
Other	3	5.57	.742			
Mass Communication & Media Arts	13	6.14	.828			
Science	39	5.79	1.081			
School of Law	8	5.83	1.039			
School of Medicine	35	5.98	.673			

*Note. *Significant at alpha level .0125*

Note. Subscale scoring. Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree = 7.

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APPENDICES

APPENDIX A

Inclusive Teaching Strategies Inventory (ITSI)

Thank you for agreeing to participate in this study. Below are operational definitions of terms used in the study. These definitions will be useful to you when responding to items on the Inclusive Teaching Strategies Inventory (ITSI).

Disability: The Americans with Disabilities Act defines disability as (a) a physical or mental impairment that substantially limits one or more of the major life activities of such individual, (b) a record of such an impairment, or (c) being regarded as having such an impairment. This includes individuals with physical impairments, learning disabilities, psychological, hearing, or visual impairments or mental illness.

Universal Design (UD): "…the idea that all new environments and products, to the greatest extent possible, should be usable by everyone regardless of their age, ability, or circumstance" (Center for Universal Design, 2010).

Academic Accommodations: Changes to in-class instruction, assessments, or course materials that make them accessible to students with disabilities.

1. Do you teach college-level courses at Southern Illinois University?

   _____ Yes _____ No

Directions: Please rate the following items according to your beliefs (I believe it's important to...) 1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = "I have not thought about this"; 5 = somewhat agree; 6 = agree; 7 = strongly agree;

2. allow students with documented disabilities to use technology (e.g., laptop, calculator, spell checker) to complete tests even when such technologies are not permitted for use by students without disabilities
   1 2 3 4 5 6 7

3. arrange extended time on exams for students who have documented disabilities
   1 2 3 4 5 6 7

4. provide copies of my overhead and/or PowerPoint presentations to students with documented disabilities
   1 2 3 4 5 6 7

5. extend the due dates of assignments to accommodate the needs of students with documented disabilities
   1 2 3 4 5 6 7

6. make individual accommodations for students who have disclosed their disability to me

1 2 3 4 5 6 7

7. provide copies of my lecture notes or outlines to students with documented disabilities
   1 2 3 4 5 6 7

8. allow students with documented disabilities to digitally record (audio or visual) class sessions
   1 2 3 4 5 6 7

9. allow a student with a documented disability to complete extra credit assignment
   1 2 3 4 5 6 7

10. reduce the overall course reading load for a student with a documented disability even when I would not allow a reduced reading load for another student
    1 2 3 4 5 6 7

11. repeat the question back to the class before answering when a question is asked during a class session
    1 2 3 4 5 6 7

12. allow flexible response options on exams (e.g., change from written to oral) for ANY student who expresses a need regardless of whether or not they have a disability
    1 2 3 4 5 6 7

13. allow ANY student to complete extra credit assignments in my course(s)
    1 2 3 4 5 6 7

14. reduce the course reading load for ANY student who expresses a need
    1 2 3 4 5 6 7

15. allow flexible response options on exams (e.g., change from written to oral) for students with documented disabilities
    1 2 3 4 5 6 7

16. be flexible with assignment deadlines in my course(s) for ANY student who expresses a need
    1 2 3 4 5 6 7

17. allow students to demonstrate the knowledge and skills in ways other than traditional tests and exams (e.g., written essays, portfolios, journals)
    1 2 3 4 5 6 7

18. allow students flexibility in submitting assignments electronically (e.g., mail attachment, digital drop box)
    1 2 3 4 5 6 7

19. allow students to express comprehension in multiple ways
    1 2 3 4 5 6 7

20. make a verbal statement in class inviting students with disabilities to discuss their needs with me
    1 2 3 4 5 6 7

21. include a statement in my syllabus inviting students with disabilities to discuss their needs with me
    1 2 3 4 5 6 7

22. survey my classroom in advance to anticipate any physical barriers
    1 2 3 4 5 6 7

23. use a variety of instructional formats in addition to lecture, such as small groups, peer assisted learning, and hands on activities
    1 2 3 4 5 6 7

24. begin each class session with an outline/agenda of the topics that will be covered
    1 2 3 4 5 6 7

25. summarize key points throughout each class session
    1 2 3 4 5 6 7

26. connect key points with larger course objectives during class sessions
    1 2 3 4 5 6 7

27. use interactive technology to facilitate class communication and participation (e.g., Discussion Board)
    1 2 3 4 5 6 7

28. supplement class sessions and reading assignments with visual aids (e.g., photographs, videos, diagrams, interactive simulations)
    1 2 3 4 5 6 7

29. create multiple opportunities for engagement
    1 2 3 4 5 6 7

30. put my lecture notes online for ALL students (on Blackboard or another website)
    1 2 3 4 5 6 7

31. use technology so that my course material can be available in a variety of formats (e.g., podcast of lecture available for download, course readings available as mp3 files)
    1 2 3 4 5 6 7

32. present course information in multiple formats (e.g., lecture, text, graphics, audio, video, hands-on exercises)
    1 2 3 4 5 6 7

33. post electronic versions of course handouts
    1 2 3 4 5 6 7

34. use a course website (e.g., Blackboard or faculty web page)
    1 2 3 4 5 6 7

35. Have you had any personal experiences with disability? (please check all that apply)

    _____ Family member, friend, or other personal contact has a disability

    _____ I have worked with or taught students with disabilities

    _____ I have a disability

    _____ No, I have not had any personal experience with disability

36. Have you ever received training related to disability or working with college students with disabilities?

    _____ Yes _____ No

37. What type of training? (please check all that apply)

    _____ Not Applicable (No Training Ever)

    _____ Attended a workshop

    _____ Took one or more courses

    _____ Read books or articles

    _____ Visited website(s)

    _____ Other _____

38. Referring to the previous question, how much training have you received? For example, a 16-week, 3-credit hour college course may include 48 hours of in-class training.

    _____ 0 hours (No Training Ever)

    _____ Less than 1 Hour

_____ 1 to 10 Hours

_____ 11 to 23 Hours

_____ 24 to 48 Hours

_____ More than 48 hours

39. If you were to attend a training session at Southern Illinois University Carbondale, which topics would you find the most relevant and/or interesting? (Please check all that apply)

_____ Accommodations for students with disabilities

_____Increasing my understanding of disability issues in college settings

_____Increasing my understanding of student experiences

_____Learning more about inclusive instruction

_____Better understanding of Disability Support Services and the supports they can provide to instructors

_____In-depth understanding of specific disability types

Please rate the following items according to your beliefs (I am confident in...) 1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = "I have not thought about this"; 5 = somewhat agree; 6 = agree; 7 = strongly agree

40. my understanding of the legal definition of disability
    1 2 3 4 5 6 7

41. my understanding of the Americans with Disabilities Act (1990)
    1 2 3 4 5 6 7

42. my understanding of section 504 of the Rehabilitation Act of 1973
    1 2 3 4 5 6 7

43. my responsibilities as an instructor to provide or facilitate disability related accommodations
    1 2 3 4 5 6 7

44. my knowledge to make adequate accommodations for students with disabilities in my course(s)
    1 2 3 4 5 6 7

45. my understanding of Universal Design
    1 2 3 4 5 6 7

Social-Desirability Scale (Revised)
Read each item and decide whether it is True or False for you.

46. I have never intensely disliked anyone.

    _____True _____False

47. I sometimes feel resentful when I don't get my way.

    _____ True _____ False

48. There have been times when I felt like rebelling against people in authority even though I knew they were right.

    _____ True _____ False

49. I am always courteous, even to people who are disagreeable.

    _____ True _____ False

50. There have been times when I was quite jealous of the good fortune of others.

    _____ True _____ False

51. I am sometimes irritated by people who ask favors of me.

    _____ True _____ False

Demographics

52. Sex (Choose one of the following answers)

    _____ Female _____Male

53. Ethnicity or Race (Choose one of the following answers)

    _____ American Indian/Alaskan Native

    _____ Asian

    _____ African American

_____ White

_____ Hispanic/Latino(a)

_____ Native Hawaiian or Other Pacific Islander

_____ Multiple Races

_____ Decline to report

54. Are you considered a full-time or part-time employee?

_____ Full-time _____ Part-time

55. Southern Illinois University Carbondale Colleges/Schools (Please select your primary College or School)

_____ Agricultural Sciences

_____ Applied Sciences and Arts

_____ Business

_____ Education and Human Services

_____ Engineering

_____ Liberal Arts

_____ Library Affairs

_____ Mass Communication and Media Arts

_____ Science

_____ School of Law

_____ School of Medicine

_____Other: _____

56. How many years have you been teaching at the postsecondary level? (Please type your answer)

57. What kinds of courses do you teach primarily? (Choose one of the following answers)

_____ General education courses

_____ Elective courses

_____ Discussion/Lab section (subsection of a lecture)

_____ Major-specific courses

_____ Graduate-level courses

58. In the past five years, approximately how many college students with disabilities have you taught or worked with? (Choose one of the following answers)

_____None

_____1-5

_____6-10

_____11-20

_____Over 20

_____Don't know/Unsure

59. What is your age? (Please type your answer)

APPENDIX B

ITSI – Items and Subscales used in the Study

Multiple Means of Presentation Subscale

Encourage students to express comprehension in multiple ways. (Survey item number 19)

Survey my classroom in advance to anticipate any physical barriers. (Survey item number 22)

Use a variety of instructional formats in my class in addition to lecture, such as small groups, peer assisted learning, and hands on activities. (Survey item number 23)

Use interactive technology to facilitate class communication and participation (e.g., Discussion Board). (Survey item number 27)

Supplement class sessions and reading assignments with visual aids (e.g., photographs, videos, diagrams, interactive simulations). (Survey item number 28)

Create multiple opportunities for engagement. (Survey item number 29)

Use technology so that my course materials are available in a variety of formats (e.g., podcast of lecture available for download, course readings available as mp3 files). (Survey item number 31)

Present course information in multiple formats (e.g., lecture, text, graphics, audio, video, hands-on exercises). (Survey item number 32)

Inclusive Lecture Strategies Subscale

Often repeat the question back to the class before answering when a question is asked during a class session. (Survey item number 11)

Begin each class session with an outline/agenda of the topics that will be covered. (Survey item number 24)

Summarize key points throughout each class session. (Survey item number 25)

Connect key points with larger course objectives during class sessions. (Survey item number 26)

Accommodations Subscale

Allow students with documented disabilities to use technology (e.g., laptop, calculator, spell checker) to complete tests even when such technologies are not permitted for use by students without disabilities. (Survey item number 2)

Arrange for extended time on exams for students with documented disabilities. (Survey item number 3)

Provide copies of my overheads and/or PowerPoint presentations to students with documented disabilities. (Survey item number 4)

Extend the due dates of assignments to students with documented disabilities. (Survey item number 5)

Make individual accommodations for students who have disclosed their disability to me. (Survey item number 6)

Provide copies of my lecture notes or outlines to students with documented disabilities. (Survey item number 7)

Allow students with documented disabilities to digitally record (audio or visual) class sessions. (Survey item number 8)

APPENDIX C

Independent and Dependent Variables

Independent Variable Name	Levels	Type of Variable
Amount of Teaching Experience	0-6 years, 7-12 years, 13+ years	Ordinal/3 Levels
Teaching Status	Full-Time, Part-Time	Nominal/Dichotomous
Academic Discipline	SIUC Colleges/Schools - Agricultural Sciences, Applied Sciences & Arts, Business, Education & Human Services, Engineering, Law, Liberal Arts, Mass Communication & Media Arts, Medicine, Science, Other	Nominal/11 Levels
Amount of Disability-Related Training Experience	None, >1-10 hours, 11-23 hours, 24-48 hours, 48+ hours	Ordinal/5 Levels

Dependent Variable Name	Description	Type of Variable
Multiple Means of Presentation	ITSI subscale that includes survey item numbers 19, 22, 23, 27 – 29, 31, 32	Continuous/Interval - Scale of 1 (*strongly disagree*) to 7 (*strongly agree*)
Inclusive Lecture Strategies	ITSI subscale that includes survey item numbers 11 and 24 – 26.	Continuous/Interval - Scale of 1 (*strongly disagree*) to 7 (*strongly agree*)
Accommodations	ITSI subscale that includes survey item numbers 2 – 8.	Continuous/Interval - Scale of 1 (*strongly disagree*) to 7 (*strongly agree*)

APPENDIX D

Principles of Universal Design for Instruction (Scott, McGuire, & Shaw, 2001)

Principle	Definition	Example(s)
Principle 1: Equitable use	Instruction is designed to be useful and accessible by people with diverse abilities. Provide the same means of use for all students; identical whenever possible, equivalent when not.	Provision of class notes online. Comprehensive notes can be accessed in the same manner by all students, regardless of hearing ability. English proficiency, learning or attention disorders, or note-taking skill level. In an electronic format, students can utilize whatever individual assistive technology is needed to read, hear, or study the class notes.
Principle 2: Flexibility in use	Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use.	Use of varied instructional methods (lecture with a visual outline, group activities, use of stories, or web board-based discussions) to provide different ways of learning and experiencing knowledge.
Principle 3: Simple and intuitive	Instruction is designed in a straightforward and predictable manner, regardless of the student's experience, knowledge, language skills, or current concentration level. Eliminate unnecessary complexity.	Provision of grading rubric that clearly lays out expectations for exam performance, papers, or projects; a syllabus with comprehensive and accurate information; or a handbook guiding students through difficult homework assignments.
Principle 4: Perceptible information	Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions of the student's sensory abilities.	Selection of textbooks, reading material, and other instructional supports in digital format or online so students with diverse needs (e.g., vision, learning, attention, English as a Second Language) can access materials through traditional hard copy or with the use of various technological supports (e.g., screen reader, text enlarger, online dictionary).
Principle 5: Tolerance for error	Instruction anticipates variation in individual student learning pace and pre-requisite skills.	Structuring a long-term course project so that students have the option of turning in individual project components separately for subscale feedback and for the integration into the final product: provision of online "practice" exercises that supplement classroom instruction.

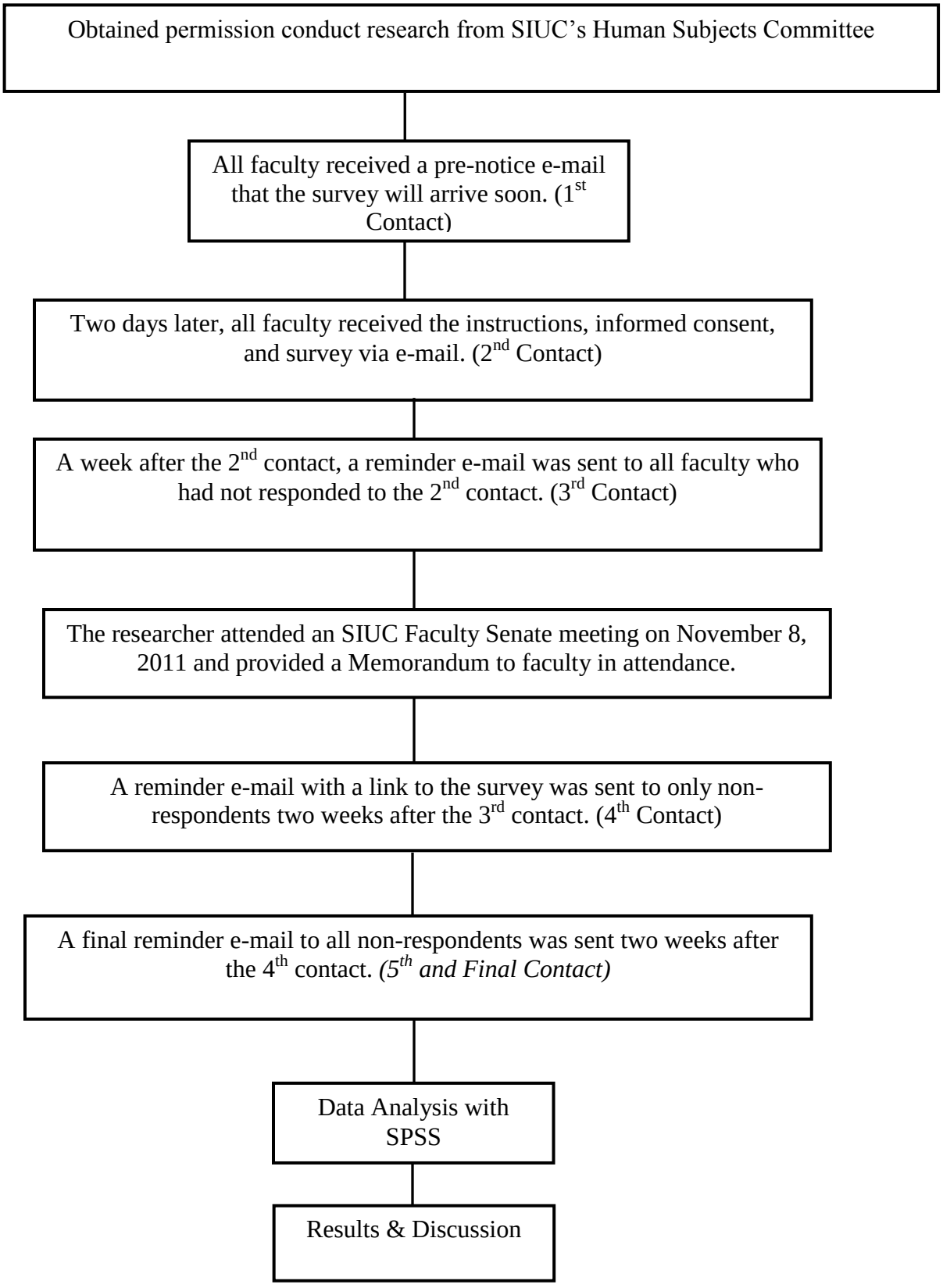
Principle 6: Low physical effort	Instruction is designed to minimize nonessential physical effort in order to allow maximum attention to learning. Note: This principle does not apply when physical effort is integral to essential requirements of a course.	Allowing students to use a word processor for writing and editing papers or essay exams. This facilities editing of the document without the additional physical exertion of rewriting portions of text (helpful for students with fine motor or handwriting difficulties or extreme organization weaknesses, and provides options for those who are more adept and comfortable composing on the computer.
Principle 7: Size and space for approach and use	Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student's body size, posture, mobility, and communication needs.	In small class settings, use a circular seating arrangement to allow students to see and face speakers during discussion- important for students with attention deficit disorder or who are deaf or hard of hearing.
Principle 8: A community of learners	The instructional environment promotes interaction and communication among students and between students and faculty.	Fostering communication among students in and out of class by structuring study groups, discussion groups, e-mail lists, or chat rooms; making a personal connection with students and incorporating motivational strategies to encourage student performance through learning students' names or individually acknowledging excellent performance.
Principle 9: Instructional climate	Instruction is designed to be welcoming and inclusive. High expectations and espoused for all students.	A statement in the class syllabus affirming the need for class members to respect diversity in order to respect diversity in order to establish the expectation of tolerance as well as encourage students to discuss any special learning needs with the instructor; highlight diverse thinkers who have made significant contributions to the field or share innovative approaches developed by students in the class.

Scott, S. S., McGuire, J. M., & Shaw, S. (2001). *Principles of Universal Design for Instruction*.

Storrs, CT: University of Connecticut, Center of Postsecondary Education and Disability

APPENDIX E

Data Collection Procedures Chart



APPENDIX F

Prenotice E-mail (First Contact)

[SUBJECT LINE: Research Request]

Dear SIUC Faculty Member,

Greetings! You will soon have an opportunity to provide valuable information for a study that is focused on postsecondary *"equity in access"* educational issues.

I am a doctoral candidate in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). A few days from now you will receive an e-mail request to complete a brief online survey for research I am conducting as part of my doctoral dissertation.

Your e-mail address was obtained from SIUC's Human Resources department. A blind copy format will be used so that the list of recipients will not appear in the header. Once you have completed the survey, your participation will end and you will not be contacted further.

The purpose of the study is to measure postsecondary faculty attitudes toward inclusive teaching strategies. Inclusive teaching methods, such as posting course notes online, are becoming easier to implement with the use of technology and have potential benefits for a diverse student population. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

You were selected to participate in this study because you are a faculty member at SIUC and can provide valuable feedback with regards to teaching methods. Thank you in advance for your time. Your response is extremely valuable in order to conduct this type of research and further understand the relationship between faculty, their teaching methods, and diverse student learners.

Sincerely,

Bryan Dallas
Doctoral Candidate
Rehabilitation Institute

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX G

E-mail With Survey Link (Second Contact)

[SUBJECT LINE: Research Request]

Dear [FIRSTNAME],

Greetings! You have been invited to participate in an online survey for a study that focuses on postsecondary **"equity in access"** educational issues. *You will find a link to the survey at the end of this e-mail*.

The survey is titled: Inclusive Teaching Strategies Inventory (ITSI)

I am a doctoral candidate in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). Your e-mail address was obtained from SIUC's Human Resources department. A blind copy format will be used so that the list of recipients will not appear in the header.

The purpose of the study is to measure postsecondary faculty attitudes toward inclusive teaching strategies. Inclusive teaching methods, such as posting course notes online, are becoming easier to implement with the use of technology and have potential benefits for a diverse student population. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

You were selected to participate in this study because you are a faculty member at SIUC and can provide valuable feedback with regards to teaching methods. Thank you in advance for your time. Your response is extremely valuable in order to conduct this type of research and further understand the relationship between faculty, their teaching methods, and diverse student learners.

The survey will take 7-10 minutes to complete. All your responses will be kept confidential and password protected. Only people directly involved with this project will have access to the surveys. Your participation will end with the completion of the survey and you will not be contacted further. Completion and return of this survey indicate voluntary consent to participate in this study.

This study is also being conducted to satisfy requirements for my doctoral dissertation in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). If you have any questions about this survey please contact me at dallas78@siu.edu or 618-453-7753 or contact Dr. Tom Upton at tupton@siu.edu or 618-453-8287.

Please contact me anytime if you would like background information on the ITSI survey, a paper copy to fill out and return, or a copy of the current study results. Thank you for your participation in this brief survey. It is my hope that information from this survey will be utilized to benefit postsecondary faculty as well as diverse student learners at SIUC.

Sincerely,

Bryan Dallas
Doctoral Candidate

Click here to do the survey:
[SURVEY LINK]

If you do not want to participate in this survey and don't want to receive any more invitations please click the following link:
[OPT OUT LINK]

If you do not respond to this survey or return the opt-out message, you will be contacted again with this request 3 times during the next 5 weeks.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX H

E-mail Reminder for Non-respondents (Third Contact)

[SUBJECT LINE: Research Request]

Dear [FIRSTNAME],

Hello again! Last week I sent you a brief online survey on faculty attitudes toward inclusive teaching strategies for a study that focuses on postsecondary **"equity in access"** educational issues. If you have already submitted the survey, please accept my sincere thanks. *If not, please take time today by utilizing the link to the survey below*. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

The survey is titled:
Inclusive Teaching Strategies Inventory (ITSI)

I am a doctoral candidate in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). Your e-mail address was obtained from SIUC's Human Resources department. A blind copy format will be used so that the list of recipients will not appear in the header.

The purpose of the study is to measure postsecondary faculty attitudes toward inclusive teaching strategies. Inclusive teaching methods, such as posting course notes online, are becoming easier to implement with the use of technology and have potential benefits for a diverse student population. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

You were selected to participate in this study because you are a faculty member at SIUC and can provide valuable feedback with regards to teaching methods. Thank you in advance for your time. Your response is extremely valuable in order to conduct this type of research and further understand the relationship between faculty, their teaching methods, and diverse student learners.

The survey will take 7-10 minutes to complete. All your responses will be kept confidential and password protected. Only people directly involved with this project will have access to the surveys. Your participation will end with the completion of the survey and you will not be contacted further. Completion and return of this survey indicate voluntary consent to participate in this study.

This study is also being conducted to satisfy requirements for my doctoral dissertation in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). If you have any questions about this survey please contact me at dallas78@siu.edu or 618-453-7753 or contact Dr. Tom Upton at tupton@siu.edu or 618-453-8287.

Please contact me anytime if you would like background information on the ITSI survey, a paper copy to fill out and return, or a copy of the current study results. Thank you for your participation

in this brief survey. It is my hope that information from this survey will be utilized to benefit postsecondary faculty as well as diverse student learners at SIUC.

Sincerely,

Bryan Dallas
Doctoral Candidate

Click here to do the survey:
[SURVEY LINK]

If you do not want to participate in this survey and don't want to receive any more invitations please click the following link:
[OPT OUT LINK]

If you do not respond to this survey or return the opt-out message, you will be contacted again with this request 2 times during the next 4 weeks.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX I

Memorandum to Faculty at Faculty Senate Meeting

SIU Southern Illinois University
CARBONDALE

REHABILITATION INSTITUTE
MAIL CODE 4609
1025 LINCOLN DRIVE
CARBONDALE, ILLINOIS 62901

618/536-7704
618/453-8268 TDD
618/453-8271 FAX

MEMORANDUM

TO: SIU Faculty

FROM: Bryan Dallas, Doctoral Candidate
Rehabilitation Institute

DATE: November 8, 2011

SUBJ: Research Request

Greetings SIU faculty members! I am currently collecting data through a brief online survey on faculty attitudes toward inclusive teaching strategies for a study that focuses on postsecondary **"equity in access"** educational issues. If you have already submitted the survey, please accept my sincere thanks. If not, please take time today by utilizing the survey link that has been e-mailed to you. My contact information is below in case you have not received an e-mail invitation, but would like to participate. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

The survey is titled: **Inclusive Teaching Strategies Inventory** (ITSI)

I am a doctoral candidate in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). The purpose of the study is to measure postsecondary faculty attitudes toward inclusive teaching strategies. Inclusive teaching methods, such as posting course notes online, are becoming easier to implement with the use of technology and have potential benefits for a diverse student population.

You were selected to participate in this study because you are a faculty member at SIUC and can provide valuable feedback with regards to teaching methods. Thank you in advance for your time. Your response is extremely valuable in order to conduct this type of research and further understand the relationship between faculty, their teaching methods, and diverse student learners.

The survey will take 7-10 minutes to complete. All your responses will be kept confidential and password protected. Only people directly involved with this project will have access to the surveys. Your participation will end with the completion of the survey and you will not be contacted further. Completion and return of this survey indicate voluntary consent to participate in this study.

This study is also being conducted to satisfy requirements for my doctoral dissertation in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). If you have any questions about this survey please contact me at dallas78@siu.edu or 618-453-7753 or contact Dr. Tom Upton at tupton@siu.edu or 618-453-8287.

Please contact me anytime if you would like background information on the ITSI survey, a paper copy to fill out and return, or a copy of the current study results. Thank you for your participation in this brief survey. It is my hope that information from this survey will be utilized to benefit postsecondary faculty as well as diverse student learners at SIUC.

If you have not received an e-mail invitation for this survey and would like to participate, please contact me and I will provide you with an electronic copy or paper copy of the ITSI survey. E-mail reminders will be sent again on November 16 and November 30, 2011.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX J

E-mail Reminder to Non-respondents (Fourth Contact)

[SUBJECT LINE: Research Request]

Dear [FIRSTNAME],

A few weeks ago I sent you a brief online survey on faculty attitudes toward inclusive teaching strategies for a study that focuses on postsecondary **"equity in access"** educational issues. According to my records, your response has not yet been received. Many SIUC faculty have responded to the survey and I look forward to your response as it will provide more valuable information to further understand the relationship between faculty, their teaching methods, and diverse student learners. *Please take time today by utilizing the link to the survey below.*

The survey is titled:
Inclusive Teaching Strategies Inventory (ITSI)

I am a doctoral candidate in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). Your e-mail address was obtained from SIUC's Human Resources department. A blind copy format will be used so that the list of recipients will not appear in the header.

The purpose of the study is to measure postsecondary faculty attitudes toward inclusive teaching strategies. Inclusive teaching methods, such as posting course notes online, are becoming easier to implement with the use of technology and have potential benefits for a diverse student population. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

You were selected to participate in this study because you are a faculty member at SIUC and can provide valuable feedback with regards to teaching methods. Thank you in advance for your time. Your response is extremely valuable in order to conduct this type of research and further understand the relationship between faculty, their teaching methods, and diverse student learners.

The survey will take 7-10 minutes to complete. All your responses will be kept confidential and password protected. Only people directly involved with this project will have access to the surveys. Your participation will end with the completion of the survey and you will not be contacted further. Completion and return of this survey indicate voluntary consent to participate in this study.

This study is also being conducted to satisfy requirements for my doctoral dissertation in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). If you have any questions about this survey please contact me at dallas78@siu.edu or 618-453-7753 or contact Dr. Tom Upton at tupton@siu.edu or 618-453-8287.

Please contact me anytime if you would like background information on the ITSI survey, a paper copy to fill out and return, or a copy of the current study results. Thank you for your participation in this brief survey. It is my hope that information from this survey will be utilized to benefit postsecondary faculty as well as diverse student learners at SIUC.

Sincerely,

Bryan Dallas
Doctoral Candidate

Click here to do the survey:
[SURVEY LINK]

If you do not want to participate in this survey and don't want to receive any more invitations please click the following link:
[OPT OUT LINK]

If you do not respond to this survey or return the opt-out message, you will be contacted again with this request 1 more time during the next 2 weeks.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX K

E-mail Reminder to Non-respondents (Fifth Contact)

[SUBJECT LINE: Research Request]

Dear [FIRSTNAME],

During the last two months I have sent you several e-mails about participating in a brief online survey on faculty attitudes toward inclusive teaching strategies for a study that focuses on postsecondary **"equity in access"** educational issues. According to my records, your response has not yet been received. *This is my final contact with you and I am hopeful that you will provide your extremely valuable insight on this timely topic*.

The survey is titled: Inclusive Teaching Strategies Inventory (ITSI)

I am a doctoral candidate in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). Your e-mail address was obtained from SIUC's Human Resources department. A blind copy format will be used so that the list of recipients will not appear in the header.

The purpose of the study is to measure postsecondary faculty attitudes toward inclusive teaching strategies. Inclusive teaching methods, such as posting course notes online, are becoming easier to implement with the use of technology and have potential benefits for a diverse student population. Your participation is *vital* in order to understand faculty perceptions of utilizing certain teaching methods in the classroom.

You were selected to participate in this study because you are a faculty member at SIUC and can provide valuable feedback with regards to teaching methods. Thank you in advance for your time. Your response is extremely valuable in order to conduct this type of research and further understand the relationship between faculty, their teaching methods, and diverse student learners.

The survey will take 7-10 minutes to complete. All your responses will be kept confidential and password protected. Only people directly involved with this project will have access to the surveys. Your participation will end with the completion of the survey and you will not be contacted further. Completion and return of this survey indicate voluntary consent to participate in this study.

This study is also being conducted to satisfy requirements for my doctoral dissertation in the Rehabilitation Institute at Southern Illinois University Carbondale (SIUC). If you have any questions about this survey please contact me at dallas78@siu.edu or 618-453-7753 or contact Dr. Tom Upton at tupton@siu.edu or 618-453-8287.

Please contact me anytime if you would like background information on the ITSI survey, a paper copy to fill out and return, or a copy of the current study results. Thank you for your participation

in this brief survey. It is my hope that information from this survey will be utilized to benefit postsecondary faculty as well as diverse student learners at SIUC.

Sincerely,

Bryan Dallas
Doctoral Candidate

Click here to do the survey:
[SURVEY LINK]

If you do not want to participate in this survey and don't want to receive any more invitations please click the following link:
[OPT OUT LINK]

If you do not respond to this survey or return the opt-out message, you will be not be contacted again as this is the final reminder. Thank you.

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

VITA

Graduate School
Southern Illinois University

Bryan K. Dallas

dallas96@gmail.com

Southern Illinois University Carbondale
Associate in Applied Science, Physical Therapist Assistant, August 1999

Southern Illinois University Carbondale
Bachelor of Science, Health Care Management, May 2000

Southern Illinois University Carbondale
Master of Science, Rehabilitation Counseling, December 2004

Dissertation Title:
Attitudes of Teaching Faculty Toward Inclusive Teaching Strategies at a Midwestern University

Major Professor: Tom Upton

Publications:

Dallas, B. K. & Upton, T. D. (2011). Maximizing access to postsecondary educational print materials for students with print-related disabilities. *Journal of Applied Rehabilitation Counseling, 42,* 35-42.

Upton, T. D. & Dallas, B. K. (2011). Workers' compensation. In T. D. Upton (Ed.), *Private rehabilitation: Evolving opportunities* (pp. 108-135). Linn Creek, MO: Aspen Professional Services.

McKee, M. F., Boston, Q., & Dallas B. (2009). Multiple supervisory relationships in AODA counseling: A need for organizational ethics. *Journal of Rehabilitation Administration, 33*, 33-44.