DISSERTATION

ACCESSIBILITY AND INCLUSION IN HIGHER EDUCATION: AN INQUIRY OF

FACULTY PERCEPTIONS AND EXPERIENCES

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2016

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ABSTRACT

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Although there are an increasing number of students with disabilities attending
institutions of higher education, the graduation rate for students with disabilities lags behind that
of non-disabled college students attending similar institutions. College faculty members produce
academic content, determine learning outcomes, and determine assessment protocol. As primary
gatekeepers of academic achievement, college faculty members are instrumental in the provision
of academic accommodations for students with disabilities. Faculty members in the College of
Engineering and in the College of Health and Human Sciences at Colorado State University were
invited to participate in answering a survey on accessibility and academic accommodations for
students with disabilities. The purpose of this study was to identify faculty issues and concerns
regarding accommodations for students with disabilities and to make suggestions that lead to
increased faculty utilization of accessible learning materials. This research intends to improve
the learning environment for students with disabilities by recommending and disseminating
inclusive teaching practices to improve accessibility of higher education so that all students can
acquire the same information and participate in the same activities in a similar manner as
students without disabilities.

ACKNOWLEDGEMENTS

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CHAPTER 1: INTRODUCTION

An increasing number of students with disabilities are attending institutions of higher education (Hong, 2015). Economic stability is a primary concern of federal disability policy, and higher education is one of the pathways to improved financial outcomes for individuals with disabilities (Census, 2010; National Council on Disability, 2015). With nearly 19% of the adult population of the United States reporting a disability, the number of students with disabilities on college campuses is increasing (Bradbard, Peters, & Caneva, 2010; Clark, 2006; National Council on Disability, 2015) Along with the rise in the population of students with disabilities comes the need to provide appropriate accommodations with regards to accessibility (Baker, Boland, & Nowik, 2012; Huger, 2011; Pilner & Johnson, 2004). Most college campuses have departments that offer resources for disabled students including advocacy, academic support, and assistance with facilitating requests for classroom accommodations. In addition to ensuring that the built environment is accessible to all, colleges and universities in the United States are responsible for ensuring accessibility of academic content as well (Rao, 2004; Rothstein, 2013; Zhang, Landmark, Reber, Hsu, Kwok, & Benz, 2010).

Since the increase in the number of students with disabilities pursuing advanced degree options is expected to continue indefinitely, institutions of higher education need to consider adopting accessibility and accommodation practices universally designed into their structures (Educause, 2015). It is common to see doorway ramps, automatic doors, elevators, and other accessible structures that are built into colleges and universities to help ensure access to classrooms for students with disabilities. The process for providing academic accommodations for course materials is not explicitly clear and accommodations are often made only after a student with a disability has made a formal request for an accommodation. Faculty members are

then responsible for providing the academic accommodation to the student or facilitating the acquisition of the necessary supports (CampusClarity, 2013; Rocco, 2001). Frequent academic accommodations such as allowing note taking assistance, sign language interpreters, and alternative testing options are well known and easily facilitated by most college faculty. What is less common and well known are the accommodations that are required when faculty make digital course materials, post items to a learning management system, scan documents, order textbooks, and design online courses (CampusClarity, 2013).

In addition to the increase of students with disabilities attending college on campuses across the U.S., there is also an increase in registration for online courses. (Phillips, Terras, Swinney, & Schneweis, 2012). "In the absence of clear standards, the line between what is and isn't discriminatory is often blurred in an online setting, and colleges have faced a number of discrimination lawsuits in the past few years because of this" (Ingeno, 2013). Even though the information on how to maintain ADA compliance is available for educators, there are questions regarding the extent of the implementation of ADA best practices throughout college courses. According to an article in the Chronicle of Higher Education, one of the biggest concerns for online programs is ADA compliance (Perry, 2010). Although the ADA outlines the guidelines for course accessibility standards, there is no standard approach on how to disseminate this information to faculty at institutions of higher education.

Many universities have created institutes and centers that address accessibility standards in education. These centers, often supported by grant funding, are aimed at implementing accessibility best practices across campus (Campus Clarity, 2013; Ingeno, 2013). Even with well-staffed and supported disability service offices, faculty members are instrumental in facilitating positive academic outcomes. Since faculty members are primary producers and

disseminators of scholarly content, it is important to evaluate and address their needs when it comes to offering their academic content in formats that are accessible by a diverse student body (Dallas, Sprong, & Upton, 2014).

Institutions of higher education are mandated to provide accessible environments for individuals with disabilities (Dallas, Sprong, & Upton, 2014; Zhang, et al., 2010). The provision of reasonable accommodation extends from the campus, to the classroom, to the course materials offered. College administrators, disability service office personnel, and faculty are tasked with supporting their institutions in meeting this mandate, which includes ensuring accessibility of academic content and learning materials.

College faculty members play an important role in the success of their students, including their students with disabilities. These students face additional challenges when navigating higher education environments. According to the National Council on Disability (2015), "students with disabilities are attending postsecondary education at rates similar to nondisabled students, but their completion rates are much lower (only 34 percent finish a four-year degree in eight years), indicating the possibility of inadequate or inappropriate supports and services" (p. 1). Students with disabilities have greater opportunities for success and persistence through their degree completion when they have access to academic accommodations available and support from college professors, (Cook, Rumrill, & Tankersley, 2009).

Research Problem

The problem is that only 34% of the population of students with disabilities completes a post secondary degree within eight years (National Council on Disability, 2015). Students not reporting a disability have a post-secondary completion rate that nearly doubles the rate of students reporting a disability (Hong, 2015). Previous research has shown that student interaction

with faculty members is one of the factors related to the success of students with disabilities (Dallas, Sprong, & Upton, 2014; Hong, 2015). In the context of providing an educational environment that is accessible for all participants, we do not know enough about what faculty members perceive regarding their role in producing accessible content and providing accommodations for students with disabilities. Even though the need to provide educational accommodations is increasing, there is not enough feedback regarding how comfortable faculty members are with providing accommodations and how to best support them in providing inclusive education environments.

Research Purpose

The purpose of this research is to identify faculty issues and concerns regarding accommodations for students with disabilities and to make suggestions that lead to faculty utilization of accessible learning materials. The purpose of this research is to improve the learning environment for all students, including students with disabilities. This research aims to recommend faculty changes to improve accessibility of higher education so that all students can acquire the same information, perform the assignments, and activities in the same manner as students without disabilities.

This study seeks to address the following research questions:

Research Questions

1. Are there differences between faculty who have had *Experience with Formal Academic Accommodations* in their classrooms and those who have not had experiences on the following constructs: *Legal*, *Accommodations Policy*,

Accommodations Willingness, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

2. Are there differences between faculty in the College of Health and Human Sciences and faculty in the College of Engineering on the following constructs: *Legal*, *Accommodations Policy*, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

3. Is there an interaction of *Experience with Formal Academic Accommodations* and *College* in regards to the following constructs: *Legal*, *Accommodations Policy*, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

4. What are the associations between the number of accommodations provided for students with disabilities and rankings on the factors of Legal, Accommodations policy, Accommodations willingness, Disability etiquette, Disability Characteristics, and Universal design?

5. What perspectives do faculty members have regarding providing accommodations for students with disabilities?

Definition of Terms

Accessible: " 'Accessible' means a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use," the agreement continues. "The person with a disability

must be able to obtain the information as fully, equally and independently as a person without a disability." (ADA.gov, 2015).

Disability: An individual with a disability is defined by the American's with Disabilities Act as a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment (U.S. Department of Justice, 2009).

Reasonable Accommodation: Reasonable accommodations are modifications or adjustments to the tasks, environment or to the way things are usually done that enable individuals with disabilities to have an equal opportunity to participate in an academic program or a job (U.S. Department of Education, 2007).

Ableism: "Disability oppression, a pervasive system of discrimination and exclusion of people with disabilities. Like racism, sexism, and other forms of oppression, ableism operates on individual, institutional, and cultural levels to privilege temporarily able-bodied people and disadvantage people with disabilities" (Griffin, Peters, & Smith, 2007, p. 335).

Delimitations

This study focuses on full and part time postsecondary faculty members at Colorado State University. This research has the following delimitations:

- The population for this study is delimited to faculty in the College of Health and Human Sciences at Colorado State University and faculty in the College of Engineering at Colorado State University.

Assumptions and Limitations

For this study, I assume the following items:

- That study participants will respond honestly and openly about their experiences and practices.

- Part time or full time faculty members, including adjunct faculty, will return survey responses. The wide range of faculty rank surveyed may have varying results based on the political nature of ADA compliance.

- Survey respondents will be willing to provide answers to open-ended survey questions. This study focuses on higher education teaching faculty with various amounts of experience and job security.

- Assumptions or limitation outcomes may be affected by a desire to be politically correct.

Researcher's perspective

The beliefs that guide my efforts are from a transformative perspective, a framework that perceives research as a means to further social justice and improve society (Creswell, 2013; Creswell & Plano-Clark, 2011). In addition to wanting to improve ADA accessibility in higher education, I also want to investigate what works for improving instructor knowledge and institutional support for accessibility best practices. I hope that the information gained in this project addresses multiple needs regarding advancing academic accessibility and quality that will encourage long-term change and positive outcomes for a large population of students seeking higher education credentials.

As an instructor and instructional designer, I am frequently tasked with creating accessible learning materials. As a scholar, I am interested in exploring faculty knowledge and perceptions regarding implementing academic accommodations for students with disabilities. It is my belief that designing learning with accommodations already in mind is similar to designing buildings that have the accessibility features built into the structure. I have personally noticed

that Universal Design for Instruction and Americans with Disabilities Act compliance are not readily promoted in courses focused on Instructional Design and courses intended to prepare future educators for teaching diverse audiences.

Significance

This study seeks to address the issues regarding inclusion of students with disabilities at postsecondary institutions in the United States. The intention of this study is to contribute to the research on academic accommodations for students with disabilities in higher education. The significance of this research benefits higher education faculty, administration, and students by adding to the body of research on maintaining the provisions of equal educational access. The provision of equal access to higher education for students with disabilities, mandated by the Rehabilitation Act of 1973 and the American's with Disabilities Act of 1990, provides that individuals with disabilities have the same opportunities as all students to participate in higher education (ADA.gov, 2015). However, these laws have not been seamlessly integrated at college campuses nationwide. Early resistance from universities stemmed from concerns regarding the cost to retrofit buildings and to provide for a wide variety of disabilities (Davis, 2015). In 2015, many universities are meeting the standards for equal access of the built environment allowing students with disabilities easier navigation around campus. What is still lacking today includes accessibility of academic content and steps towards overall inclusion of students with disabilities in higher education (Davis, 2015; National Council on Disabilities, 2015).

Although there is an increase in the number of students with disabilities attending institutions of higher education, graduation rates for this population is vastly different from that

for students without disabilities. The difference in graduation rate is especially concerning

considering that sixty percent of students who received special education services in high school

attend "some kind of postsecondary educational program after high school, a rate only slightly

lower than nondisabled peers (at 67 percent)" (National Council on Disability, 2015, p.1). The

completion rate for students with disabilities is significantly lower in comparison to students

without disabilities (Lombardi, Murray, & Gerdes, 2012; Wessel, Jones, Markle, & Westfall,

2009). According to the U.S Department of Education (2012), 58% of students without

disabilities obtain a four-year college degree. Graduation rates for students with disabilities have

been reportedly lower, ranging from 21% (Florida College System, 2009) to 34% (Lombardi et

al., 2012; National Council on Disability, 2015; Newman, Wagner, Cameto, & Knokey, 2009).

One way to improve outcomes for students with disabilities is to create a disability-

friendly institutional climate (Huger, 2011). It is important to consider the fact that "anyone can

become disabled, whether it is temporary or an onset of a debilitating illness, genetically

predisposed, or traumatically induced" (Clark, 2006, p. 309). A disability friendly climate offers

value for all students and serves to increase sensitivity and acceptance of those who are different.

Exposure and interaction with a diverse group of students is an important aspect of the college

experience according to student development theory (Huger, 2011). Offices of disability service

on college campuses can provide basic access to higher education but they can not fully address

the bigger picture of cultural inclusion and creating environments that are welcoming to a diverse

range of students (Pilner & Johnson, 2004).

Since the passage of the American's with Disabilities Act in 1990, "over 25 universities

including Harvard, Princeton, Yale, MIT, Northwestern, Penn State, The Ohio State University,

and the University of California at Berkeley, have been sued or have had a complaint brought

against them for not providing access or alternative formats for disabled students or closed captioning for deaf students" (Davis, 2015, p.1). These lawsuits are evidence that changing legislation does not equal cultural and institutional change.

Accessibility is a top priority for the disability rights movement (Pilner & Johnson, 2004). A student with a disability faces additional challenges including having to navigate the physical environment and obtaining the academic content in an accessible format. Physical accessibility includes retrofitting buildings to include elevators, automatic door openers, and Universal Design for new construction including accessibility features into the design (Silver, Bourke, & Strehorn, 1998). Ensuring accessibility of academic content is less straightforward (Davis, 2015; Grasgreen, 2014). Disability service offices often coordinate academic accommodations, however it is reported that these offices are often small and unable to support an entire campus (Grasgreen, 2014). One solution that has been suggested to help create naturally inclusive educational environments is the same concept that is applied to new construction, Universal Design for Learning (Pilner & Johnson, 2004).

Universal Design for Learning is one way to transform educational access for all students, not only students with disabilities (Pilner & Johnson, 2004). Although the concept of Universal Design has been suggested as a way to provide inclusive educational content, it has been slow to take hold across universities in the United States. A few of the barriers cited by institutions as preventing the implementation of Universal Design include limited resources for training on accessibility issues, the expense of purchasing new technologies, and other competing priorities on campus (Raue & Lewis, 2011).

Obtaining a college degree has become a goal for many Americans. Since the passage of the ADA in 1990, the number of young adults earning bachelor degrees has increased. The

percentage of Americans who completed a bachelor's degree rose from 23 percent in 1990 to 34 percent in 2014 (National Center for Educational Statistics, 2015). Now more than ever, there is an urgent need to evaluate how to best meet the academic needs of a diverse group of students attending institutions of higher education.

CHAPTER 2: REVIEW OF LITERATURE

The purpose of this literature review is to examine the history and implementation of accessibility in higher education including faculty knowledge, attitudes, and practices related to providing accommodations to students. In addition to providing depth and background to the many aspects involved in accessibility and American's with Disabilities Act compliance, this review also serves to explore research on Universal Design for Instruction, practices, attitudes, and perceived support for the development and delivery of accessible higher education for all participants. This literature review highlights key issues regarding accessibility and inclusive higher education found in journals searched in the following databases: EBSCO, Pro Quest Digital Dissertations, Academic Search Premier, and Google Scholar. The keywords searched include: disability, accommodation, faculty, higher education, accessibility, attitude, universal design, and inclusive education.

The entire scope of the issues regarding accommodations for students with disabilities in higher education will not be covered in this review. Themes that are included in this literature review highlight the important background regarding the history of disability and accessibility in higher education and the factors related to faculty practices and academic accommodations. This review will address previous research studies that have utilized survey methodology to assess faculty attitudes, perception, knowledge, beliefs and practices of faculty members regarding providing academic accommodations, universal design, and promoting inclusive classroom environments overall.

History of Disability and Disability Perception

Historically, disability has been viewed from different perspectives. People have perceived the concept of disability from a religious perspective where persons with impairments were seen as sinners and cast aside (Castaneda, Hopkins, & Peters, 2013). For much of the 20th century, disability has been viewed from a medical perspective. In this model, the individuals with disabilities were considered as issues to be fixed or segregated. The current social models consider a humanistic perspective where individuals with disabilities as independent individuals deserving of human rights. The independent living movement, a grassroots effort by individuals with disabilities, was instrumental in the struggle for the passage of Section 504 of the 1973 Rehabilitation Act. This Act, along with the Americans with Disabilities Act of 1990, along with additional laws protecting individuals with disabilities ensures equal access and rights to all regardless of ability (ADA.gov, 2015). According to Castaneda, Hopkins, and Peters:

> The Americans with Disabilities Act covers both physical and mental impairments, such as mental retardation, orthopedic, hearing, visual, speech, or language impairments, emotional disabilities, learning disabilities, autism, traumatic brain injury, attention deficit disorder, depression, mental illness (such as bipolar disorder or schizophrenia), environmental illnesses, and chronic illnesses such as diabetes, HIV/AIDS, cancer, and epilepsy (2013, p. 461).

Even with the passage of the American's with Disabilities Act and the 2008 Amendment, there are still various definitions and perspectives of disability. Individuals with disabilities have fought for their equal rights to be given equal protection under the laws of the United States of America. Institutions of higher education, as institutions of public access, must determine how to serve the increasing numbers of persons with disabilities seeking advanced degrees.

Laws Regarding Accessibility and Higher Education

After the passage of the Vocational Rehabilitation Act of 1973 (Rehab Act, 1973), Section 504, and the 2008 Amendment--the scope and meaning of disability and accessibility have been redefined and broadened (U.S. Department of Education, n.d.). The purpose of the Rehabilitation Act of 1973 is "to prohibit discrimination on the basis of disability in programs run by federal agencies; programs that receive federal financial assistance; in federal employment; and in the employment practices of federal contractors" (Rehab Act, 1973). Section 504 indicates that students should be allowed the academic aids necessary to be successful at the institution. These requirements are outlined differently according to grade level.

> At the postsecondary level, the recipient is required to provide students with appropriate academic adjustments and auxiliary aids and services that are necessary to afford an individual with a disability an equal opportunity to participate in a school's program. Recipients are not required to make adjustments or provide aids or services that would result in a fundamental alteration of a recipient's program or impose an undue burden (U.S. Department of Education, Office of Civil Rights, n.d.).

These laws were engineered to protect the individual rights of those with disabilities when participating in programs that receive Federal funding from the U.S. Department of Education. Section 504 of the 1973 Rehab Act provides:

> No otherwise qualified individual with a disability in the United States shall,
>
> solely by reason of her or his 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 (ADA.gov, 2015).

While the American's with Disabilities Act has clearly defined the rule regarding the participation of students with disabilities in higher education, it is less clear on how institutions

are to provide the necessary accommodations. Those decisions have been largely left up to each

institution to decide on their accessibility policies and plans, as long as they meet the

requirements of the American's with Disabilities Act.

Policy Regarding Accommodations for students with disabilities

The legislation that resulted from the American's with Disabilities Act and Section 504

of the Rehabilitation Act of 1973 mandates that institutions provide reasonable accommodations

to all program participants. There are different types of accommodations offered in higher

education environments. Academic accommodations that faculty can facilitate, outlined in Table

1., are often divided into groups based on the disability and possible reasonable accommodation.

With the increase in online learning, accommodations for students with disabilities are

expanding to include guidelines and options for online materials. The examples frequently found

in online learning environments are noted with an asterisk in Table 1. There are numerous types

of disabilities and associated accommodation, and there is no prescribed matching of a disability

to an accommodation. However, faculty should know about the different types of disabilities

and have a basic understanding of accommodations that they can provide for their students

(Grasgreen, 2013; Ingeno, 2013).

Table 1

Disability Type and Examples of Faculty Mediated Accommodations

Disability Type	Accommodation Examples
Low Vision	• Large print handouts, exams, signs, and materials. • Seating opportunities at or near the front of the class • Printed materials that have contrast for low vision • Electronic format for course materials. Electronic format uses headings and styles for ease of navigation* • Allow supplemental light use in classroom • Allowing for lecture recording or note-taking assistance
Blindness	• Electronic lecture notes, handouts, and texts—selection of texts that are accessible* • Descriptions of images, pictures, charts and videos that are verbal and audible; screen-reader accessible* • Allowing for lecture recording or note-taking assistance

Hearing Loss	• Seating near front of room or close to instructor.
	• Closed Captioning on all videos and films*
	• Lip reading accommodations—sitting near speaker; Real-time captioning
	• Alternate testing location--offering reduced auditory and visual distraction
	• Written assignments, lab instructions, summaries, notes
Learning Disabilities	• Allowing for lecture recording or note-taking assistance
	• Extended time on exams and assignments
	• Alternative testing arrangements/locations
	• Instructions provided in diverse formats, including visual, aural and tactile
	• Concise oral instructions, clear written instructions and well organized visual aids
	• Easy to navigate online materials.
Mobility Impairment	• Allowing for lecture recording or note-taking assistance
	• Classrooms, labs and field trips in accessible locations.
	• Providing alternative activities that do not require free range of motion
	• Wheelchair-accessible furniture and room arrangement
	• Class materials available in electronic format*
	• Extended time for completion of activities
Speech Impairment	• Alternative assignments for oral presentations (e.g., written assignments, one-to-one presentation)*
	• Course substitutions
	• Flexibility with in-class discussions (e.g., consider online discussion boards)*
Chronic Health Condition	• Note taking assistance
	• Flexible attendance requirements
	• Extra exam time and allowances for breaks
	• Assignments made available in electronic format*

Disclosing Disability and Accommodations Processes

Even though accommodations are available for students with disabilities, many students

do not receive the full support necessary to complete their program of study in the same manner

as their non-disabled peers (Newman, Wagner, Cameto, & Knokey, 2009). According to a

report from the National Longitudinal Transition Study on the transitions of post high school

youth with disabilities

> Twenty-four percent of postsecondary students who were identified as having a
> disability by their secondary schools were reported to receive accommodations or
> supports from their postsecondary schools because of their disability. In contrast,
> when these postsecondary students were in high school, 84 percent received some
> type of accommodation or support because of a disability (Newman, et al., 2009).

When students need to disclose their disability at the college level, they experience

barriers that were not present in the K-12 environment. In a (2010) study by Barnar-Brak,

Lectenberger, and Lan, interviews with students with disabilities revealed that students do not

disclose their disability for many reasons including, to appear able-bodied, to avoid

discrimination, and to avoid a lack of understanding from faculty members (p. 418). In typical university classrooms, most able-bodied students do not require accommodations or alterations to the environment to have their needs met. For students with disabilities, the social environment can be difficult to navigate for many reasons. One of the barriers surrounding inclusion for students with disabilities stems from the uncertainty and lack of knowledge that exists within the "temporarily able-bodied" culture persistent across university campuses (Griffin et al., 2007). As stated by Griffin et al., (2007), the many different manifestations of disability creates a difficulty for recognizing and addressing ableism (p. 336). "The common thread that unites the experiences of people of diverse disabilities is having to contend with a culture that sees disability through fear, pity, or shame and teaches us to regard disability as a tragedy" (Griffin et al., 2007, p. 336). For many decades, the dominant paradigm regarding people with disabilities has been one of oppression and discrimination. Some barriers are being addressed by implementing universal design for architecture and instruction on college campuses, but more can be done to educate others on ablest privilege and disability etiquette.

Disability Etiquette

Many colleges and institutions provide guidelines for disability etiquette, however these suggested practices are not fully disseminated and infused into the larger culture. The term etiquette, according to the Merriam Webster Dictionary, means "the rules indicating the proper way to behave" (etiquette, n.d). Disability etiquette practices promote full inclusion of disabled persons in society and challenge the ableist practices that are pervasive in society. According to Griffin, Peters, and Smith (2007), "Perspectives on disability are shaped by cultural beliefs about the value of human life, health, productivity, independence, normality, and beauty. Such beliefs are reflected through institutional values and environments that are often hostile to people whose

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abilities fall outside of what is culturally defined as normal" (p.336). Institutions need to make it a priority to model behaviors that reflect an understanding of able-bodied privilege. According to Tatum (2013), the direct implementation of the ADA is loosely enforced and that in order to address ableist practices individuals need to take steps to avoid ableism in daily life (Sec 6). Disability oppression is not something that is easily recognized by those in the dominant, temporarily, able-bodied, group. According to Bell (2007), "members of dominant or advantaged groups also internalize the system of oppression and can operate as agents of the system by perpetuating oppressive norms, policies, and practices" (p.12). This internalization can lead to feelings of fear, guilt, and avoidance in order to continue to see society through a distorted lens (Bell, 2007). In order to challenge the institutional privilege given to the temporarily able-bodied, faculty members and administrators should consider the ways in which their practices ignore disability etiquette and continue to support privilege on college campuses. "People with disabilities experience discrimination, segregation, and isolation as a result of other people's prejudice and institutional ableism, not because of the disability itself" (Griffin et al., 2007, p. 342). Discrimination stems from individual fear and insecurity and creates stereotypes and privilege that persist in higher education and society overall. College faculty members, as educators of adults, impart a certain degree of concern for fairness in their practice. According to Brookfield and Holst, (2011), "Fairness requires a good faith commitment of people of very different racial group memberships, ethnic affiliation, and cultural identity to learn to appreciate the different ways members of each group view the world and consider what counts as appropriate action" (p. 13). This fairness or equality of education relies on the fact that we can learn to live with "profound difference" and find ways to exist with a collective identity designed to include instead of diminish the rights of others (Brookfield & Holst, 2011).

Measurement of Constructs Related to Faculty Accommodation Practices

Previous studies of faculty members and accommodations for students with disabilities have measured various constructs such as faculty knowledge, understanding, attitudes, beliefs and practices regarding providing accommodations for students with disabilities. It is important to evaluate the interactions that faculty members have with students with disabilities because of the relationship between faculty members, academic accommodations processes, and the creation of academic content. Previous studies have shown that there is a relationship between receiving classroom accommodations and improved college outcomes for students with disabilities (Madaus, Grigal, & Hughes, 2014).

Many different survey instruments have been used to evaluate the relationships between factors affecting faculty willingness and ability to provide academic accommodations to students with disabilities (Alghazo, 2008; Baker, Boland, & Nowik, 2012; Benham, 1997; Cook, Rumrill, & Tankersley, 2009; Dallas, Sprong, and Upton, 2014; Dona & Edmister, 2001; Hammel, 2009; Murray, Wren, & Keys, 2008; Phillips, Terras, Swinney, &, Schneweis, 2012; Zhang, Landmark, Reber, Hus, Kwok, & Benz, 2010). Many of the studies reviewed offered insight into different approaches to measuring accessibility practices and faculty disposition towards providing accommodations. The literature review for this study included the keywords attitude, knowledge, perception, and practices, which returned multiple references that were then narrowed down according to relevance. Those remaining studies that were returned in the search were then organized into categories based on the construct being measured including faculty attitudes, faculty knowledge, faculty perception, faculty priority, and faculty experience related to disability accommodation.

Measurement of Faculty Attitudes and Accommodations Willingness

Faculty attitude and willingness to provide accommodations have been popular constructs of measurement in research evaluating faculty and disability accommodation (Alghazo, 2008; Benham, 1997; Dallas, Sprong, & Upton, 2014; Findler, Vilchinsky, & Werner, 2007; Lombardi & Murray, 2011). Researchers have identified a link between faculty attitude and willingness to provide academic accommodations (Zhang, Landmark, Reber, Hsu, Kwok, & Benz, 2010). A study conducted seven years after the passage of the American's with Disabilities Act investigated faculty attitudes and knowledge towards providing accommodations using the Attitudes Toward Disabled Persons (ATDP Form B) scale (Benham, 1997). The goal of the study was to evaluate the relationship between faculty attitudes and knowledge and faculty rank, college, gender, teaching experience, experience with providing accommodations, faculty age, and type of accommodation used (Benham, 1997, p. 35). The results indicated that the variables teaching experience and gender were the areas most affecting attitudes towards accommodating students with disabilities. Benham (1997) found that faculty with a base knowledge of the American's with Disabilities Act and those with more experience had more negative attitudes towards providing accommodations. The researcher suggested that these correlations may be affected by the newness of the ADA Act and that many faculty members were still adjusting to the change in the perceptions of individuals with disabilities (Benham, 1997).

Of the studies retrieved regarding measurement of faculty attitude, two of the scales utilized measured faculty attitude towards accommodations for students with disabilities and included the concept of inclusive teaching often called, Universal Design for Instruction (UDI) (Dallas, Sprong, & Upton, 2014; Lombardi & Murray, 2011). In addition to analyzing faculty attitudes regarding providing accommodations for students with disabilities, these two studies,

and additional studies recently published, have included the practice of Universal Design due to

the increasing importance placed on providing accessibility for students with broader

classifications of disabilities and with the increase of content offered in online environments.

Universal Design for Instruction

One approach for addressing accommodation issues is to include accessibility from the

beginning of the course development. This inclusive teaching strategy is commonly called

Universal Design for Instruction. The National Center for Universal Design for Learning guides

education professionals on how to develop learning materials that are accessible by diverse

audiences (udlcenter.org, 2015). Universal Design was inspired by architecture that promoted

accessibility features built into the design as opposed to creating a structure and then working to

make it accessible after the fact (Lombardi & Murray, 2011). Universal Design offers principles

for creating a curriculum that is accessible for multiple audiences which includes detailed

guidelines for creators of academic content to follow. The popularity of application of Universal

Design principles has grown with the increase of students with both visible and invisible

disabilities appearing in college courses both online and on campus. The Universal Design

framework follows the seven principles established within the field of architecture. With the

increasing types of disabilities and variety of associated accommodations, applying Universal

Design principles has become an essential practice in many instructional design approaches. The

application of Universal Design goes beyond only meeting American's with Disabilities Act

accommodation standards. Universal Design approaches seek to provide inclusive learning that

promotes higher education learning environments that view disability from a social model as

opposed to a medical model (Dallas, Sprong, & Upton, 2014). According to the study authors,

including a Universal Design approach in higher education courses would "benefit all students

and decrease the need for 'retrofitting' courses in the form of academic accommodations for students with disabilities" (Dallas, Sprong, & Upton, 2014). Since faculty members express that they have a heavy workload, applying Universal Design principles from the beginning of course creation would reduce the workload in the long term. Faculty who utilize Universal Design approaches could feel confident that they are using best practices when it comes to providing an inclusive teaching environment (Lombardi & Murray, 2011). A summary of Universal Design principles outlined in Table 2 adapted from the Center for Universal Design at North Carolina State University. This framework provides a general overview and explanation of the key design standards associated with Universal Design for Instruction.

Table 2
Universal Design Standards and Explanation

Key Design Standard	Explanation
Flexible to use	Design can accommodate a wide variety of needs and preferences.
Equitable to use	Useful design that can be appropriate for people of diverse abilities.
Information is perceptible	Information is conveyed to user despite sensory abilities and surrounding conditions.
Simple and intuitive	Content and design are easy to understand by individuals with many different abilities and levels of background experience.
Requires little physical effort	Design intends to cause little fatigue and is easy to use.
Tolerates Error	Gives minimum negative consequences for accidental button clicks or errors.
Appropriate size and space for use	Provides adequate room for user manipulation irrelevant of user body shape or ability.

Note: Adapted from the Center for Universal Design, North Carolina State University.

Universal Design for Instruction has been promoted by many training programs involved with promoting inclusive pedagogies (Schelly, Davies, & Spooner, 2011). At Colorado State University, an initiative called the *Access Project* has been working with the university's *Institute for Teaching and Learning* (TILT) and other entities on campus to provide faculty

training in the form of teaching seminars and workshops. According to Schelly et al., (2011) "Universal Design for Learning is promoted as a model for good teaching generally, and as such it is becoming an important part of a broader conversation about pedagogy" (p. 18).

Prior investigations of faculty attitudes have focused primarily on accessibility issues, faculty knowledge, and willingness to provide accommodations. A study conducted at the University of Oregon measured faculty attitudes towards disability with a focus on accommodation and Universal Design principles (Lombardi & Murray, 2011). According to the study authors, "students report that their barriers to learning are directly attributable to the instructional practices of faculty members rather than their willingness to provide specific accommodations" (Lombardi & Murray, 2011, p.44). By including factors relating to the adoption of UD principles, the researchers were able to include aspects of inclusive instruction and assess faculty views on these items. Lombardi and Murray (2011), suggest that prior measures of faculty attitudes and perceptions of issues related to disability have limits for various reasons. These include a focus on certain disability categories and limited assessment of inclusive teaching strategies and Universal Design practices. Although there are limitations to research on faculty attitude and knowledge regarding both providing accommodations for students with disabilities and adopting Universal Design principles, it is important to continue to evaluate:

> (a) faculty perceptions and knowledge of disability, (b) faculty willingness to invest time supporting students with disabilities, (c) fairness and sensitivity among faculty, (d) performance expectations of students with disabilities, (e) faculty knowledge of disability law, (f) faculty willingness to provide teaching, exam, and accessibility accommodations, and (g) knowledge of campus support services targeted toward students with disabilities (Lombardi & Murray, 2011, p. 45).

Increased emphasis on faculty responsibility, combined with the relationship between student experience and faculty interactions, makes it is imperative that research on how to support faculty in their efforts to provide accommodations is continued. Lombardi and Murray (2011) compared survey results for faculty rank and department finding that non-tenure faculty members were more willing to provide accommodations than tenured faculty members were. The researchers (2011) found that "faculty in Education scored higher than other divisions on fairness, adjustments to assignments, minimizing barriers, and willingness to invest time" (p. 49). There were also significant results on the subscales relating to prior training. Lombardi & Murray (2011) found that the faculty who had received training reported higher knowledge of disability law made more attempts to provide inclusive instruction, had greater knowledge of campus resources, increased willingness to invest their time on accommodations, and had higher expectations of disabled students than faculty who have not had prior American's with Disabilities Act focused training (p. 49). These results suggest that ADA training for faculty regarding disability law, resources, and accommodations guidelines could increase the number of professors who have the willingness and knowledge necessary for adopting inclusive teaching strategies.

The construct of Universal Design was further investigated with a survey that measured faculty attitudes toward academic accommodations and the application of Universal Design for Instruction (Dallas, Sprong, & Upton, 2014). This study utilized a survey with a population of higher education faculty at a large mid-western University. The researchers used an instrument, adapted from the research study previously described in this review from Lombardi & Murray (2011) titled the "Inclusive Teaching Strategies Inventory" (ITSI). The ITSI measures "faculty attitudes and actions with regard to academic accommodations and inclusive learning

environments" (Dallas, Sprong, & Upton, 2014, p. 14.). Overall, the researchers found that faculty members had favorable attitudes towards Universal Design and the provision of academic accommodations. Faculty reported increased comfort with providing accommodations based on years of teaching experience and participation in prior training on accommodations for students with disabilities (Dallas, Sprong, & Upton, 2014).

A study on Universal Design and Science, Technology, Engineering, and Math (STEM) education courses was conducted by Langley-Turnbaugh, Blair, and Whitney, from the University of Southern Maine (2013,) found that as a result of participating in professional development in Universal Design for Learning practices, faculty members have made changes in the design of their courses. Sixty-four percent of faculty participants reported providing information in multiple formats, and forty-three percent reported using interactive media (Langley-Turnbaugh, et al., 2013). The Universal Design for Learning faculty education program implemented at the University of Southern Maine showed success in informing college faculty members on how they can utilize principles of Universal Design to address the needs of a diverse population of students. Langley-Turnbaugh et al., (2013) successfully facilitated the Universal Design training with a constructivist approach that encouraged faculty member collaboration to support a collegial perspective encourages development of universally accessible courses.

Measurement of Faculty Knowledge

Another variable measured in the analysis of the factors that affect faculty provision of accommodations for students with disabilities was faculty knowledge of legal requirements and accommodations. Dona (2001) found "only two- fifths (39%) of faculty responded correctly to 18 of 23 questions (78%) on a 23-item assessment" (p. 5). These findings indicate that from the faculty members responding to the survey, only 29% had received training in Americans with Disabilities Act guidelines.

Other studies support the relationship between faculty knowledge of legal requirements and willingness to provide accommodations (Rao & Gartin, 2003; Zhang, Landmark, Reber, Hsu, Kwok, & Benz, 2010). Zhang et al. (2010) considered faculty somewhat knowledgeable of ADA law and accommodations. In addition to evaluating faculty knowledge, Zhang et al. (2010) measured four other constructs in their survey. The constructs include beliefs regarding education of students with disabilities, the perception of institutional support, level of comfort interacting with students with disabilities and provision of accommodations for students (p. 279). The results indicated that there were no significant differences amongst the five constructs when compared across groups such as faculty rank, gender, and discipline (Zhang et al., 2010, p. 280). Results of additional analysis of constructs found faculty displayed knowledge of the Americans with Disabilities Act law and indicate that there is adequate institutional support for facilitating accommodations (Zhang et al., 2010). Professors are not providing accommodations at high levels. They have a lower amount of comfort interacting with students with disabilities--despite displaying strong beliefs regarding supporting all students (Zhang et al., 2010, p. 283). These results suggest that faculty may be willing to provide accommodations and feel that they are important however; they are still not providing adequate support.

Faculty Priority and Understanding

In addition to examining attitudes and knowledge regarding providing accommodations for students with disabilities, researchers have also considered faculty experience, priority, and understanding as factors affecting faculty facilitated disability accommodation. Phillips, Terras, Swinney, & Schneweis (2012) conducted a survey of faculty perception and understanding of disability accommodation in an online environment. It is important to consider research on online learning due to the increase of online courses available including hybrid courses and electronic materials in general that faculty create and place in online environments (Phillips et

al., 2012). The researchers noted that although professors are offered assistance with providing online accommodations, they had little knowledge of faculty needs and experiences are in regards to providing accommodations in their online courses. Phillips et al., (2012) utilized a survey to assess accommodations for online courses and their perceptions about online accommodations. The survey contained both fixed items and open-ended questions that related to responses from the fixed responses. The results from the closed response items indicated that online instructors make accommodations and are willing to accommodate students in their courses. The most common accommodations reportedly made in their online courses were for learning disabilities, medical issues, physical disabilities, visual disabilities, and mental health problems (Phillips et al., 2012). The open-ended question results reported by Phillips et al., (2012) included three dominant themes,

> 1) Instructors recommended ongoing support, both human and organizational, 2)
> Instructors recommended that training be available to new and experienced
> instructors that targets expectations for making accommodations, types of
> accommodations, and resources available, and 3) Instructors suggested making
> students aware of their responsibilities and of the availability of resources.
> Instructors wanted students to disclose their disabilities to ensure equity in their
> courses and equitable access to the supports and services available to them
> (p.340).

In addition to the themes reported, it was interesting to note that a small number of faculty members had reported making accommodations in their online courses. It was indicated that this was often due to the perception that students were self-accommodating and not requesting accommodations (Phillips et al., 2012). The researchers suggest that students may have a variety

of reasons for not disclosing a disability and that they may not know what options and supports

are available to them (Phillips et al., 2012).

Cook, Rumrill, and Tankersley (2009) examined the knowledge of faculty regarding

accommodations for students with disabilities and faculty priorities regarding Universal Design

for Instruction (UDI), knowledge of disability characteristics, and etiquette regarding disability.

Cook, et al. (2009) emphasized the importance of interactions that students have with faculty.

"One factor that could help to explain the struggle that many students with disabilities face in

higher education is the relationship and related interactions that they have with university

faculty" (Cook, et al., 2009, p. 84). Recognizing that faculty members are primary producers of

academic content, the researchers intended to identify items relating to accommodations for

students with disabilities that faculty considered important and the degree to which they feel they

are being addressed on their campus. Similar to previous studies measuring attitudes, Cook et al.

(2009) assessed the following six themes: ADA law, accommodations-policy, willingness to

accommodate, etiquette regarding disability, disability characteristics, and Universal Design for

Instruction (p. 89).

Cook et al., (2009) found that there were results of high importance-high agreement

themes that they called "success stories" (p. 89). Those were items where faculty agreed that

items were important, and they felt that they were being addressed at their campus. For example,

faculty expressed that the theme of disability etiquette was significant and being addressed at

their campus. (Cook et al., 2009). Another high importance high agreement theme was

Accommodations-Policy. Faculty indicated that they understood what a reasonable

accommodation was, that accommodations are a legal requirement, and that accommodations do

not change course curriculum (Cook et al., 2009). This result is consistent with previous results

indicating that faculty members are favorable to providing accommodations (Zhang, et al., 2010; Lombardi & Murray, 2011).

In contrast to the high importance/high agreement "success stories", Cook et al. (2009) also found that there were areas of high importance and low agreement (high/low) and areas of low importance and low agreement (low/low). For these categories, the researchers found that for the high importance/low agreement results, faculty indicated that the items were important but that they were not being addressed at their campus. For the low importance-low agreement items, Cook et al. (2009) noted that these themes might be the most difficult to address due to the faculty perception that the items are not important as well as not being addressed on their campus. The themes that had results of low/low related to accommodations policy and accommodation willingness. Cook et al. (2009) stated that faculty rated the accommodations-willingness theme as low importance and agreement because faculty perceive accommodations as time-consuming, difficult to implement, and may alter the content of the course (p. 93). However, for two accommodations-lecture recording and increased time on exams-faculty indicated those as highly important and frequently occurring at their institution (Cook et al., 2009). While the low/low rated themes may be difficult to address as areas for immediate change, the items rated as high importance/low agreement (high/low) are good themes to address due to the fact that faculty rated the items as important but noted that they were not being facilitated at their school. The high/low ratings were for the areas relating to Characteristics of disabilities, UDI, and legal issues (Cook et al., 2009). Faculty indicated that they considered knowledge of disability characteristics, knowledge of legal requirements, and Universal Design for Instruction as important but noted these items as not being disseminated at their institution. One of the most interesting results related to the high/low items were the responses related to

disability characteristics. For this category, faculty responses "tended to be higher for more obvious disabilities and lower for less obvious, or hidden, disabilities" (Cook et al., 2009, p. 92).

Key Findings

College professors are an important piece of the accommodations for students with disabilities puzzle. Student experience and academic outcomes are positively related to their experiences with faculty members. Since faculty members are often primary producers of academic content, they also share in the responsibility for making their content accessible. There are many factors affecting faculty that are related to providing accommodations for students with disabilities. The body of research on faculty provision of accommodations for students with disabilities covers a range of constructs including attitude, knowledge, willingness, etiquette, priority, and experience. Many research studies have approached the topic of accommodations in higher education, developing and administering survey instruments to faculty to gage their perceptions on these related constructs. In their discussion, Cook et al., (2009) suggest that future researchers should "perform a confirmatory factor analysis to empirically test the themes that were derived rationally from the previous literature" (p.94). In order to gain a broader perspective on the landscape of accommodations for students with disabilities on campus a variety of means of data collection should be employed and institutions of different size and scope should be included.

Overall, faculty members are favorable to accommodations that are easy to implement, require little faculty effort, and do not change the nature of the course or seem to give an advantage to the student with disabilities. Prior research studies suggest that faculty members are willing to provide reasonable accommodations for students with disabilities but accommodations are still not being readily implemented across college campuses (Zhang et al, 2010).   What is

missing from the body of literature is an analysis of the effects of prior experience working with persons with disabilities and additional factors that faculty may suggest as relevant to the accommodations picture. It is important to continue to explore the constructs related to disability and accommodations and the possible reasons why inclusive education practices on a whole are not more widely implemented in higher education. In the previously reviewed research, the assessment of faculty attitudes, practices, and other constructs related to disability and academic accommodations have been evaluated in relation to variables such as faculty gender, program, ethnicity, and other personal factors. Studies have not fully assessed the interactions between disability related constructs and variables including college department and prior experience with providing formal accommodations for students with disabilities.

CHAPTER 3: METHOD

This quantitative study investigated factors related to faculty experience and perspectives regarding accessibility and accommodation of students with disabilities. The theoretical foundations for this study stem from both Post-Positivist and Pragmatist perspectives. Since a quantitative cross-sectional survey instrument was used test the effects of *Experience with Formal Academic Accommodations* and *College* on factors related to accommodations for students with disabilities, the research design is largely Post-positivist in nature (Creswell & Plano Clark, 2011). The Post-Positivist paradigm does not adequately address the entire scope or world-view of this research study. In addition to the forced items on the survey instrument, this study uses open-ended survey questions designed to gather objective input from faculty related to their experiences working with students with disabilities. A pragmatic perspective is also foundational to this research study in that it supports practicality and usefulness of multiple perspectives. "It draws on many ideas, including employing 'what works', using diverse approaches, and valuing both objective and subjective knowledge" (Creswell & Plano Clark, 2011, p.43).

Procedures

The first step in the study was to distribute the *Faculty Priorities and Understanding of College Students with Disabilities Scale* (Cook, et al., 2009) to faculty members in the College of Health and Human Sciences and the School of Engineering at Colorado State University. The survey invitation was emailed to faculty in both colleges inviting them to follow the link to take the electronic survey administered through Qualtrics. A second survey invitation was sent after the initial distribution to enhance survey response.

Participants and Site

This study utilized a nonprobability sample of faculty members at Colorado State University. According to Creswell (2015), with a convenience sample, the researcher chooses participants due to their willingness and availability to participate in the study. The survey was distributed electronically to faculty members teaching courses both online and on campus. Faculty will be recruited from the College of Health and Human Sciences (CHHS) and the School of Engineering. CHHS consists of faculty members from the following departments: Construction, Design and Merchandising, Food Science and Human Nutrition, Human Development and Family Studies, Occupational Therapy, School of Education, and the School of Social Work. The Department of Health and Human Sciences is has the largest enrollment at the institution, with 4,781 undergraduate students and 168 full time faculty members and 104 temporary faculty (College of Health and Human Sciences, 2015). This population of faculty from the College of Health and Human Sciences was selected by because the researcher's program of study is housed within this college and she has better access to gatekeepers necessary for survey distribution.

The College of Engineering at Colorado State University is composed of approximately 100 faculty members in the schools of Atmospheric Science, Biomedical Engineering, Chemical & Biological Engineering, Civil and Environmental Engineering, Electrical & Computer Engineering, and Mechanical Engineering. The College of Engineering currently has 2047 undergraduate students and 606 graduate students as of spring of 2016 (CSU College of Engineering, 2016). The researcher has selected to survey the College of Engineering to evaluate the accessibility climate in a different department at CSU. The focus of the College of Engineering is quite different that that of the College of Health and Human Sciences. According to records from the Resources for Disabled Students Office at Colorado State University,

students with disabilities pursue many different majors on campus including many housed within the College of Health and Human Sciences and the School of Engineering.

The invitation was delivered by email using email distribution lists of registered faculty in both colleges. The email invitation introduced the survey and indicated participant responses were voluntary and would remain anonymous. Steps to protect the participant privacy were taken including using *Qualtrics*, a survey administration program allowing users to submit anonymous responses. No identifying information was requested of participants and survey data was only be accessed at password-protected locations. Participants were informed of their rights and it was noted on the invitation email (Appendix C) that informed consent was implied based upon the completion of the survey instrument (Creswell, 2015).

Data Collection

The *Faculty Priorities and Understanding Regarding College Students with Disabilities Scale* (Cook et al., 2009) was used as the quantitative data collection tool (Appendix A). This survey was developed using existing literature and themes found to influence the experiences and outcomes of students with disabilities. It was used with permission from the survey author (Appendix B). In addition to asking faculty about the importance of disability related themes, the survey requested faculty to rate the degree that these practices are represented at their institution. "This dual questioning allows identification of the high importance issues for faculty as well as identification of which high important issues are and are not currently being addressed at their institution" (Cook et al., 2009, p. 87). This feature provided greater information beyond the individual faculty member and looks at accessibility as being addressed on campus as a whole.

To gather additional information related to faculty understanding and experiences working with students with disabilities the survey will have additional open-ended question requesting participants to provide information related to their experiences and perceptions regarding providing accommodations for students with disabilities.

Measures

The following measures were considered in this study. The independent variables: experience with students with disabilities (*Experience with Formal Academic Accommodations*) and the home college of the faculty member, School of Engineering or College of Health and Human Sciences (*College*). The dependent variables of the study were the constructs assessed by the survey instrument: *Legal*, *Accommodations-Policy*, *Accommodations-Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*. The survey asked faculty members to provide responses for two separate ranking scales, a ranking for *Importance*—how important the statement was to them and a ranking for *Agreement*—extent to which you agree the statement represents the general climate/practices at Colorado State University. With the two separate rankings for each construct (*Importance and Agreement*), there were twelve overall constructs measured. The internal reliability estimates for each survey construct as reported by Cook et al., (2009) are listed in Table 3.

Table 3

Internal Reliability Estimates for Survey Themes

Theme	Number of items	Cronbach alpha **Importance**	Cronbach alpha **Agreement**
Legal	4	.77	.72
Accommodations Policy	10	.89	.90
Accommodations Willingness	5	.79	.79
Disability Etiquette	5	.76	.77
Disability Characteristics	7	.97	.94
Universal Design for Instruction	7	.82	.87

Note. Adapted from Cook, L., Rumrill, P.D., & Tankersley, M. (2009). Priorities and understanding of faculty members regarding college students with disabilities. *International Journal of Teaching and Learning in Higher Education. 21*(1) 84-96.

As shown in Table 3, the internal reliability of the survey was calculated for each of the twelve constructs. The reliability coefficients for the construct *Legal* were .77 (*Importance)* and .72 (*Agreement)* respectively and for the *Accommodations-Willingness* construct the scores were .76 (*Importance)* and .77 (*Agreement)*. The reliability coefficients for those constructs are within the acceptable range for the Social Sciences, which is typically a coefficient of at least .70 (Introduction to SAS, 2015). The researcher conducted the internal reliability estimates from the data collected at Colorado State University. The reliability coefficients for the survey constructs, with the exception of the Disability Etiquette construct, were similar to the findings from Cook et al., (2009) and are listed in Appendix E.

Data Analysis

The returned surveys were screened for incomplete submissions. The response rate was recorded, survey bias evaluated, and incomplete responses discarded. The quantitative data collected in this study was coded and analyzed using the Statistical Package for the Social

Sciences, IBM SPSS. Overall, the survey responses were analyzed to answer the following research questions:

1. Are there differences between faculty who have had *Experience with Formal Academic Accommodations* in their classrooms and those who have not had experiences on the following constructs: *Legal*, *Accommodations Policy*, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

2. Are there differences between faculty in the College of Health and Human Sciences and faculty in the College of Engineering on the following constructs: *Legal*, *Accommodations Policy*, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

3. Is there an interaction of *Experience with Formal Academic Accommodations* and *College* in regards to the following constructs: *Legal*, *Accommodations Policy*, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

4. What are the associations between the number of accommodations provided for students with disabilities and rankings on the factors of *Legal*, *Accommodations Policy*, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and *Universal Design for Instruction*?

5. What perspectives do faculty members have regarding providing accommodations for students with disabilities?

The research design for this study considered two independent variables, *Experience with Formal Academic Accommodations* and *College*, separately. These independent variables each have two levels (*College*—College of Health and Human Sciences and School of Engineering; *Experience with Formal Academic Accommodations*—yes; no) and are independent samples. The survey instrument assessed rankings on constructs related to disability accommodation factors (*Legal, Accommodations-policy, Accommodations-willingness, Disability etiquette, Disability characteristics,* and *Universal Design for Instruction*) these constructs are the dependent variables being measured in this study and their definitions are outlined in Table 4. The dependent variables, the twelve constructs (the six primary constructs with Importance and Agreement ranking scales for each construct) measured on the survey, were assumed to be approximately normal.

Table 4

Labels and Definitions Constructs measured on survey instrument

Construct	Definition
Legal Importance	Ranking of legal importance factors related to rights of students with disabilities. Questions related to faculty understanding of laws and rights of students with disabilities.
Legal Agreement	Extent to which faculty members agree that faculty members at Colorado State have legal knowledge related to students with disabilities and accommodations processes.
Accommodations-policy Importance	Faculty ranking of their understanding of accommodations policies and the important reasons for providing different types of disability specific reasonable accommodations.
Accommodations-policy Agreement	Extent to which faculty members agree that accommodations policies at Colorado State University are implemented.
Accommodations-willingness Importance	Ranking of how willing faculty members are to provide accommodations for different types of disabilities.
Accommodations-willingness Agreement	Extent to which faculty members agree that faculty in general are willing to accommodate students with disabilities at Colorado State.
Disability etiquette Importance	Ranking of importance of etiquette regarding students with disabilities. Etiquette includes not stereotyping, using respectful language and maintaining confidentiality.

Disability etiquette Agreement	Extent to which faculty members agree that the general climate at Colorado State reflects etiquette regarding students with disabilities.
Disability characteristics Importance	Ranking of how important faculty members find understanding of disability characteristics in teaching practice.
Disability characteristics Agreement	How much faculty members agree that faculty members at Colorado State have a basic understanding of characteristics of disabilities.
Universal Design for Instruction Importance	Faculty ranking of importance for Universal Design for Instruction (UDI) UDI is characterized by inclusive and accessible design for all aspects of course materials
Universal Design for Instruction Agreement	Extent to which faculty members agree that the general climate at Colorado State reflects an approach using Universal Design for Instruction.

For the first three research questions, (Table 5) the survey responses were analyzed by Factorial ANOVA to investigate the interactions among the independent variables (*Experience with Formal Academic Accommodations; College)* and the twelve constructs. (Morgan, Leech, Gloeckner, & Barrett, 2011).

Table 5

Quantitative Research Questions, Variables, Skewness and Statistics

Research Question	IV/Levels	DV/Levels	Skewness	Statistic
1. Are there differences between faculty who have had *Experience with Formal Academic Accommodations* and those who have not had experiences on the following constructs: *Legal, Accommodations Policy, Accommodations Willingness, Disability Etiquette, Disability Characteristics, and Universal Design for Instruction?*	*Experience with Formal Academic Accommodati ons* -2 levels Experience/ No Experience	*Legal Importance & Agreement, Accommodations Policy Importance & Agreement, Accommodations Willingness Importance & Agreement, Disability etiquette Importance & Agreement, Disability Characteristics Importance & Agreement and Universal Design for Instruction Importance & Agreement*	Probably normally distributed	Factorial ANOVA
2. Are there differences between faculty in the College of Health and Human Sciences and faculty in the College of Engineering on the following constructs: *Legal, Accommodations Policy, Accommodations Willingness,*	Home College-2 levels Engineering or College of Health &	*Legal Importance & Agreement, Accommodations Policy Importance & Agreement, Accommodations Willingness Importance & Agreement, Disability etiquette Importance*	Probably normally distributed	Factorial ANOVA

Disability Etiquette, Disability Characteristics, and *Universal Design for Instruction*?	Human Sciences	*& Agreement, Disability Characteristics Importance & Agreement and Universal Design for Instruction Importance & Agreement*		
3. Is there an interaction of *Experience with Formal Academic Accommodations* and *College* on accommodations for students with disabilities in regards to the following constructs: *Legal, Accommodations Policy, Accommodations Willingness, Disability Etiquette, Disability Characteristics, and Universal Design for Instruction?*	Experience-2 Levels; Home College-2 levels	*Legal Importance & Agreement, Accommodations Policy Importance & Agreement, Accommodations Willingness Importance & Agreement, Disability etiquette Importance & Agreement, Disability Characteristics Importance & Agreement and Universal Design for Instruction Importance & Agreement*	Nominal, Dichotomous Assumed to be probably normally distributed	Factorial ANOVA
4. What are the associations between the number of accommodations provided for students with disabilities and rankings on the factors of *Legal, Accommodations Policy, Accommodations Willingness, Disability Etiquette, Disability Characteristics, and Universal Design for Instruction?*	Number of formal Accommodations provided, many levels, College	*Legal Importance & Agreement, Accommodations Policy Importance & Agreement, Accommodations Willingness Importance & Agreement, Disability etiquette Importance & Agreement, Disability Characteristics Importance & Agreement and Universal Design for Instruction Importance & Agreement*	Assumed to be probably normally distributed.	Pearson and Spearman Correlation

For research question 4, Correlation Matrices were created to identify associations between number of formal accommodations provided and the twelve survey constructs (Table 6). The fifth research question related to *Experience with Formal Academic Accommodations* is associated with the open-ended survey questions (Appendix A). The responses to the open-ended questions were reviewed, typed and organized using *NVivo* coding the data for theme development and content analysis.

The open-ended survey questions as listed on the faculty survey (Appendix A) are:

1. In university courses that you have taught, approximately how many students with

   disabilities have formally requested that they be provided with accommodations

   for students with disabilities?

2. If you have had experiences in your teaching practice with students with disabilities,

   please share a story or details regarding an interaction that you had:

The qualitative data gathered from the open-ended survey questions was transcribed and reviewed multiple times to gain a general sense of the data (Creswell, 2013). Once the initial exploratory step had been conducted, the responses to the open-ended survey questions were organized using NVivo software to look for general trends and to identify unique responses. According to Creswell (2013), "the core steps of qualitative data analysis include pairing the information into smaller pieces arranged by meaning, creating themes from initial codes, and graphically displaying the information in tables and charts" (p. 180). Although some coding of the data was guided by the open-ended questions on the survey, the data analysis was not limited to pre-determined constructs that line up with the survey questions. The data set was interpreted from a broad perspective based on the stories that the faculty members share regarding their experience. The information shared in their stories was then be further narrowed down into themes and patterns based on the participant responses (Creswell, 2015).

CHAPTER 4: RESULTS

The purpose of this study was to survey faculty members to identify their agreement and importance regarding the process of providing formal accommodations to college students with disabilities. Reasonable accommodations, as outlined in the Americans with Disabilities Act, allow students with disabilities the opportunities to pursue an education in the same manner as their non-disabled peers. The problem is that the post-secondary completion rate for students with disabilities is lower than for students without disabilities. The ability to acquire course content and participate without barriers in the college environment is an important factor in the success of students with disabilities. Since faculty members are directly involved in the creation and dissemination of academic content, they are instrumental in the facilitation of accommodations for students with disabilities and inclusive education practices overall. There is not enough feedback from faculty on their experiences of providing formal accommodations for students with disabilities and their understanding of Universal Design for Instruction principles.

Forty-one completed surveys were returned. This included 31 from the College of Health and Human Sciences, and 10 responses from the College of Engineering. There were 20 responses to the open-ended question related to faculty experiences with students with disabilities. The survey return rate was small considering the population of faculty from CHHS is approximately 168 full time faculty members and 104 part time and temporary faculty members. There are approximately 100 faculty members in the College of Engineering. "Achieving a high response rate by e-mail contact only is also problematic. Specialized populations notwithstanding (e.g., attendees at conferences or recent doctorate graduates), very few e-mail-only surveys have been found effective at achieving high response rates." (Stern, Bilgen, & Dillman, 2014, p. 287).

In order to reach as many faculty members as possible and gain the forty-one completed responses, the survey invitation was emailed on two separate occasions.

The quantitative results were downloaded and then organized with IBM SPSS for the Social Sciences (SPSS) computer software. The survey response scales were recoded by construct resulting in the twelve constructs and initial exploratory data analysis (Table 6.) was conducted to check assumptions, verify coding, and identify any other issues with the data set (Morgan, Leech, Gloeckner, & Barrett, 2011). The qualitative survey responses were analyzed with NVivo to determine word frequency, identify codes, and develop themes based on the initial coding.

Table 6

Descriptive Statistics for the Constructs Related to Attitudes Regarding Disabilities Measured on the Faculty Priorities and Understanding of College Students with Disabilities Scale.

Constructs	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Legal Importance	48	4.0	16.00	13.96	2.21	-2.04	.34
Legal Agreement	47	7.0	16.00	10.34	2.30	.56	.35
Policy Importance	41	24.0	40.00	35.22	4.09	-1.05	.37
Policy Agreement	39	16.0	40.00	26.03	5.43	.32	.37
Willingness Importance	43	9.0	20.00	15.49	2.86	-.46	.36
Willingness Agreement	40	6.0	20.00	12.15	2.68	.84	.37
Disability Characteristics Importance	39	12.0	24.00	19.36	3.76	-.230	.39
Disability Characteristics Agreement	37	6.00	24.00	13.54	4.36	.880	.39
Disability Etiquette	40	14.00	20.00	17.40	1.97	-.403	.37

Importance							
Disability Etiquette Agreement	38	9.00	20.00	13.74	2.83	.192	.38
Universal Design for Instruction Importance	41	15.00	24.00	20.32	2.56	.077	.37
Universal Design for Instruction Agreement	38	10.00	24.00	14.89	2.87	1.01	.38

The descriptive statistics (Table 6) indicate that the distributions for the constructs are approximately normal with the exception of Legal Importance (Table 6), which is negatively skewed, -2.038. For the independent variables, *College* and *Experience with Formal Academic Accommodations*, *College* was coded as Engineering (1) and College of Health and Human Sciences (2) and *Experience with Formal Academic Accommodations* was recoded into *No (0)*, 4 or less *Experiences with Formal Academic Accommodations* and *Yes (1)* 5 or more *Experiences with Formal Academic Accommodations*. The highest experience number listed by faculty was 100, there were two responses indicating zero formal accommodations given, and the mean experience number was 21.

Research Question 1-3 Factorial ANOVA

For the first research question, factorial ANOVAs were conducted to determine if there were differences on the twelve constructs, if those differences varied depending on the faculty member's college, and if they had had experience giving formal accommodations.

1. Are there differences between faculty who have had experiences with students with disabilities in their classrooms and those who have not had experiences on the following factors: *Legal, Accommodations Policy, Accommodations Willingness, Disability Etiquette, Disability Characteristics,* and *Universal Design*?

2. Are there differences between faculty in the College of Health and Human Sciences and faculty in the College of Engineering on the following factors: *Legal, Accommodations Policy, Accommodations Willingness, Disability Etiquette, Disability Characteristics,* and *Universal Design*?

3. Is there an interaction of experience with students with disabilities and prior training on accommodations for students with disabilities in regards to the following factors: *Legal, Accommodations Policy, Accommodations Willingness, Disability Etiquette, Disability Characteristics,* and *Universal Design*?

For research, questions 1, 2, and 3 there were twelve sub-questions, one for each construct. The sub-questions and ANOVA tables for each construct follow:

a. Are there differences in ranking on *Legal Importance* for faculty members varying on *Experience with Formal Academic Accommodations* and or *College* and is there a significant interaction between *Experience with Formal Academic Accommodations* and *College*?

As shown in Table 7a, there is no significant interaction between *Experience with Formal Academic Accommodations* and *College*. The rankings for the construct *Legal Importance* do not depend on the College of the faculty member or their *Experience with Formal Academic Accommodations*.

Table 7a

Two-Way Analysis of Variance for Legal Importance as a function of College and Experience with Formal Academic Accommodations

Variable and Source	*Df*	Sum of Squares	MS	*F*	*p*	*Partial η²*
College	1	1.07	1.07	.36	.55	.01
Experience with Formal Academic Accommodations	1	2.56	2.56	.86	.36	.02
College * *Experience with Formal Academic Accommodations*	1	5.13	5.13	1.73	.21	.05
Error	35	103.61	2.96			

There are no significant differences in mean rankings for *Legal Importance* related to *College* or *Experience with Formal Academic Accommodations.* As reflected in the means table 7b, faculty in both colleges with varying levels of experiences agreed that this factor is important.

Table 7b

Means, Standard Deviations, and N statistic for Legal Importance

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	14.67	1.53	3
	Experience	13.14	1.86	7
	Total	13.60	1.84	10
College of Health and Human Sciences	No Experience	14.18	2.04	11
	Experience	14.44	1.46	18
	Total	14.35	1.68	29
Total	No Experience	14.29	1.90	14
	Experience	14.08	1.66	25
	Total	14.16	1.73	39

b. Are there differences in ranking on *Legal Agreement* for faculty members varying on

Experience with Formal Academic Accommodations and or *College* and is there a

significant interaction between *Experience with Formal Academic*

Accommodations and *College*?

For *Legal Agreement*, as shown in Table 8a, there is no significant interaction between the Variables *College* and *Experience with Formal Academic Accommodations*. There were no significant differences in ranking on *Legal Agreement* for faculty members relative to their *Experience with Formal Academic Accommodations* or *College* and is there no significant interaction between *Experience with Formal Academic Accommodations* and *College*.

Table 8a

Two-Way Analysis of Variance for Legal Agreement as a function of College and Experience with Formal Academic Accommodations

Variables and source	SS	df	MS	F	P	Partial η^2
College	7.56	1	7.56	1.35	.25	.04
Experience with Formal Academic Accommodations	4.66	1	4.66	.83	.37	.02
College * *Experience with Formal Academic Accommodations*	6.44	1	6.44	1.15	.29	.03
Error	190.71	34	5.61			

The mean rankings for *Legal Agreement* were low overall for both colleges and levels of experience. Table 8a shows the mean rankings and standard deviations for the *Legal Agreement* construct. Eta for College was .20, which is a medium effect size while the eta for Experience and the interaction are both in the small to smaller than typical effect size ranges (Morgan, et al., 2011).

Table 8b

Mean Rankings, Standard Deviations, and N for Legal Agreement Construct

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	12.00	3.46	3
	Experience	10.14	2.19	7
	Total	10.70	2.58	10
College of Health and Human Sciences	No Experience	9.91	1.58	11
	Experience	10.06	2.66	17
	Total	10.00	2.27	28
Total	No Experience	10.36	2.13	14
	Experience	10.08	2.48	24
	Total	10.18	2.33	38

c. Are there differences in ranking on *Accommodations Policy Importance* for faculty members

varying on *Experience with Formal Academic Accommodations* and or *College* and is

there a significant interaction between *Experience with Formal Academic*

Accommodations and *College*?

Table 9a shows that there is no significant interaction between *Experience with Formal*

Academic Accommodations and *College* in regards to the construct *Accommodations Policy*

Importance. Overall, as shown in Table 9a, there are no significant *F's* for *College F=. 648*,

Accommodations Policy Agreement F=1.23, and the interaction of *College* and *Experience with*

Formal Academic Accommodations F=1.27.

Table 9a

Two-Way Analysis of Variance for Accommodations Policy Importance as a function of College and Experience with Formal Academic Accommodations

Variable and source	*SS*	*df*	*MS*	*F*	*p*	*Partial η²*
College	11.31	1	11.31	.65	.43	.02
Experience with Formal Academic Accommodations	22.67	1	22.67	1.23	.26	.04
*College * Experience with Formal Academic Accommodations*	22.14	1	22.14	1.27	.27	.04
Error	593.09	34	17.44			

The means and standard deviations for the construct *Policy Importance* are listed in Table 9b.

The eta for the *Experience* variable and the Interaction of *College* and *Experience* are both .20,

which is a medium effect size (Morgan, Leech, Gloeckner, & Barrett, 2011).

Table 9b

Means, Standard Deviation and N for the Policy Importance Construct

College	Experience with Formal Academic Accommodations Yes or No	Mean	Std. Deviation	N
College of	No Experience	36.33	3.51	3
Engineering	Experience	32.57	5.79	7
	Total	33.70	5.33	10
College of Health	No Experience	35.80	4.71	10
and Human Sciences	Experience	35.78	3.14	18
	Total	35.79	3.69	28
Total	No Experience	35.92	4.33	13
	Experience	34.88	4.19	25
	Total	35.24	4.21	38

d. Are there differences in ranking on *Accommodations Policy Agreement* for faculty

members varying on *Experience with Formal Academic Accommodations* and or

College and is there a significant interaction between *Experience with Formal*

Academic Accommodations and *College*?

For the effects of *College* and *Experience with Formal Academic Accommodations* on

Accommodations Policy Agreement the ANOVA, results are listed in Table 10a.

Table 10a

Two-Way Analysis of Variance for Accommodations Policy Agreement as a function of College and Experience with Formal Academic Accommodations

Variable and source	SS	Df	MS	F	P	Partial η^2
College	53.38	1	53.38	1.74	.21	.05
Experience with Formal Academic Accommodations	38.41	1	38.41	1.25	.27	.04
College * *Experience with Formal Academic Accommodations*	86.39	1	86.39	2.81	.10	.08
Error	984.56	32	30.77			

For *Accommodations Policy Agreement,* Table 10a*,* there are no significant interactions

between *Experience with Formal Academic Accommodations* and *College* and there are no

significant main effects of *Experience with Formal Academic Accommodations* or *College*.

Table 10b shows the means and standard deviations for *Accommodations Policy Agreement*. For

this construct, faculty in the School of Engineering had the highest mean rankings *M*=31.33. The

eta for College is .20, a medium effect and .28 for the interaction of *College* and *Experience with*

Formal Academic Accommodations, which, according to Morgan et al., (2011), is a medium to

large effect size.

Table 10b

Means, Standard Deviations and N for Accommodations Policy Agreement

College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	31.33	7.57	3
	Experience	25.14	6.18	7
	Total	27.00	6.86	10
College of Health and Human Sciences	No Experience	24.70	4.45	10
	Experience	25.94	5.55	16
	Total	25.46	5.10	26
Total	No Experience	26.23	5.73	13
	Experience	25.70	5.62	23
	Total	25.89	5.58	36

e. Are there differences in ranking on *Accommodations Willingness Importance* for faculty members varying on *Experience with Formal Academic Accommodations* and or *College* and is there a significant interaction between *Experience with Formal Academic Accommodations* and *College*?

The results from the ANOVA for *Accommodations Willingness Importance* are listed in Table 11a. As shown in Table 11a, the main effect of *Experience* is significant for *Accommodations Willingness Importance*, F=4.3, Sig .04.

Table 11a

Two-Way Analysis of Variance for Accommodations Willingness Importance as a function of College and Experience with Formal Academic Accommodations

Variable and source	SS	*Df*	*MS*	*F*	*p*	*Partial η^2*
College	13.52	1	13.52	1.88	.18	.05
Experience with Formal Academic Accommodations	31.29	1	31.29	4.35	.044	.11
*College * Experience with Formal Academic Accommodations*	12.96	1	12.96	1.80	.188	.05
Error	259.27	36	7.20			

For the *Experience with Formal Academic Accommodations*, the effect size is .26, which

according to Morgan, et al., (2011) indicates a small to medium effect. For *Experience with*

Formal Academic Accommodations in the School of Engineering the effect size was .47, a

medium to large effect. The main effect of *Experience* on *Accommodations Willingness*

Importance does not depend on if the faculty member was in the College of Engineering or in the

College of Health and Human Sciences (Table 11a). Faculty in both colleges ranked this

construct higher based on their level of experience with formal accommodations (Figure 2).
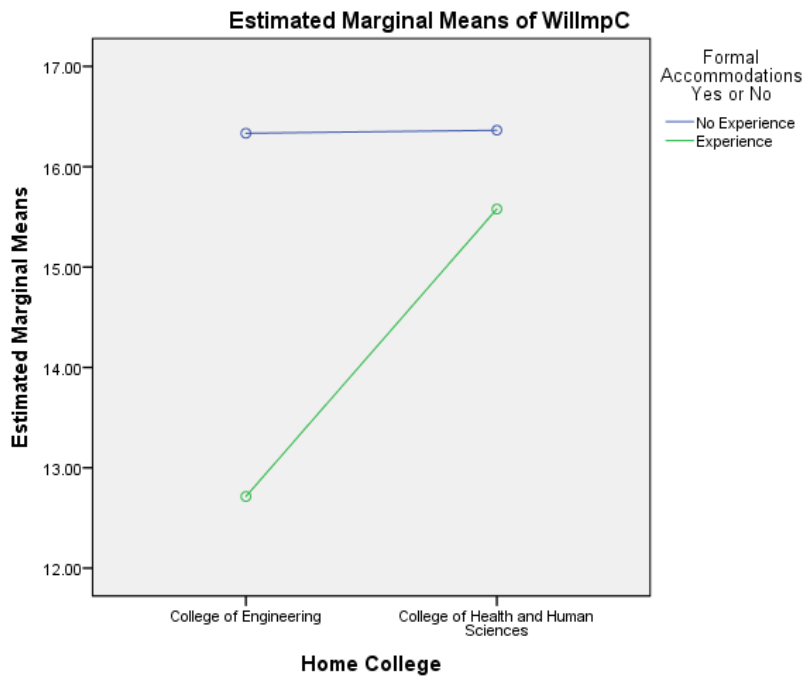
Figure 2. Means plot indicating that faculty with **no** *Experience with Formal Academic Accommodations* ranked *Accommodations Willingness Importance* higher than faculty with *Experience with Formal Academic Accommodations*. Faculty with **no** *Experience with Formal Academic Accommodations* in both Engineering and in the College of Health and Human Sciences ranked *Accommodations Willingness Importance* higher than faculty with *Experience.*

There was no significant interaction (F=1.80, Sig .188) between *College* and *Experience*

with Formal Academic Accommodations (Table 11a). Table 11b shows that faculty members in

both colleges gave higher rankings on *Accommodations Willingness Importance* than faculty

with *Experience with Formal Academic Accommodations*. This means that overall, faculty with

more experience gave lower rankings on importance of faculty willingness to provide accommodations. For *Accommodations Willingness Importance*, Table 11b indicates that faculty in the College of Engineering and faculty in the College of Health and Human Sciences who had no *Experience with formal accommodations* had similar mean rankings for *Accommodations Willingness Importance*.

Table 11b

Means, Standard Deviation, and N statistic for Accommodations Willingness Importance

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	16.33	4.04	3
	Experience	12.71	2.56	7
	Total	13.80	3.33	10
College of Health and Human Sciences	No Experience	16.36	2.77	11
	Experience	15.58	2.48	19
	Total	15.87	2.57	30
Total	No Experience	16.36	2.90	14
	Experience	14.81	2.77	26
	Total	15.35	2.88	40

The etas for *College* and the interaction of *College* and *Experience with Formal Academic Accommodations* are both .22, which is a medium effect size. For the main effect of Experience *with Formal Academic Accommodations* the eta is .33, which according to Morgan et al., (2011), is a large effect size.

> *f.* Are there differences in ranking on *Accommodations Willingness Agreement* for faculty members varying on *Experience with Formal Academic Accommodations* and or *College* and is there a significant interaction between *Experience with Formal Academic Accommodations* and *College*?

Table 12a shows that there are no significant differences in rankings on *Accommodations Willingness Agreement* for faculty members varying on *Experience with Formal Academic Accommodations* or *College* and is there is no significant interaction between *Experience with Formal Academic Accommodations* and *College* in regards to *Accommodations Willingness Agreement*.

Table 12a

Two-Way Analysis of Variance for Accommodations Willingness Agreement as a function of College and Experience with Formal Disability

Variable and Source	SS	df	MS	F	p	Partial η^2
College	19.87	1	19.87	2.68	.11	.08
Experience with Formal Academic Accommodations	4.99	1	4.99	.67	.42	.02
College * *Experience with Formal Academic Accommodations*	13.99	1	13.99	1.88	.18	.05
Error	244.5	33	7.41			

The means for the *Accommodations Willingness Agreement* construct are listed in Table 12b. Faculty in the College of Health and Human Sciences gave lower rankings overall for *Accommodations Willingness Agreement* regardless of their level of *Experience with Formal Academic Accommodations*. The eta for College was .28, which is a medium to large effect size. For *Experience with Formal Academic Accommodations* the eta was .14, indicating a small effect. The eta for the interaction was .22, a medium to large effect (Morgan et al., 2011).

Table 12b

Means, Standard Deviation, and N statistic for Accommodations Willingness Agreement

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	14.67	4.73	3
	Experience	12.29	2.22	7
	Total	13.00	3.09	10
College of Health and Human Sciences	No Experience	11.40	2.67	10

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	Experience	12.00	2.57	17	
	Total	11.78	2.58	27	
Total	No Experience	12.15	3.34	13	
	Experience	12.08	2.43	24	
	Total	12.11	2.74	37	

g. Are there differences in ranking on *Disability Etiquette Importance* for faculty

members varying on *Experience with Formal Academic Accommodations* and or

College and is there a significant interaction between *Experience with Formal*

Academic Accommodations and *College*?

As shown in Table 13a, there are no significant differences in rankings on *Disability Etiquette*

Importance for faculty members for *Experience with Formal Academic Accommodations* and

College and there are no significant interactions between *Experience with Formal Academic*

Accommodations and *College* when considering *Disability Etiquette Importance.*

Table 13a

Two-Way Analysis of Variance for Disability Etiquette Importance as a function of College and Experience with Formal Academic Accommodations

Variable and source	df	SS	MS	F	p	Partial η^2
College	1	6.14	6.14	1.51	.23	.04
Experience with Formal Academic Accommodations	1	.00	.00	.00	.98	.00
*College * Experience with Formal Academic Accommodations*	1	.00	.00	.00	.98	.00
Error	35	142.7	4.07			

For *Disability Etiquette Importance*, Table 13b displays the means and standard

deviations for the College of Engineering and the College of Health and Human Sciences for

faculty with No Experience and faculty members without experience providing Formal

Academic Accommodations. Faculty members across all colleges gave mean rankings of greater

than 16.67 for the Importance ranking on the Disability Etiquette construct.   As shown in Table

13b, faculty members in the College of Health and Human Sciences gave higher mean rankings

overall for *Disability Etiquette Importance* regardless of *Experience* level. For Disability

Etiquette Importance, the main effects of *College* are the only results with an eta greater than

zero, .22, which was a medium effect size.

Table 13b

Means, Standard Deviations, and N Statistic for the Variable Disability Etiquette Importance

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	16.67	2.52	3
	Experience	16.67	2.34	6
	Total	16.67	2.24	9
College of Health and Human Sciences	No Experience	17.64	2.20	11
	Experience	17.68	1.73	19
	Total	17.67	1.88	30
Total	No Experience	17.43	2.21	14
	Experience	17.44	1.89	25
	Total	17.44	1.98	39

1h. Are there differences in ranking on *Disability Etiquette Agreement* for faculty

members varying on *Experience with Formal Academic Accommodations* and or

College and is there a significant interaction between *Experience with Formal*

Academic Accommodations and *College*?

As shown in Table 14a, there are no significant differences in rankings on *Disability Etiquette*

Agreement for faculty members varying on *Experience with Formal Academic Accommodations*

or *College* and is there is no significant interaction between *Experience with Formal Academic*

Accommodations and *College* regarding *Disability Etiquette Agreement.*

Table 14a

Two-Way Analysis of Variance for Disability Etiquette Agreement as a function of College and Experience with Formal Academic Accommodations

Variable and source	*df*	*SS*	*MS*	*F*	*p*	*Partial η^2*
College	1	.41	.41	.05	.83	.00

Experience with Formal Academic Accommodations	1	.01	.01	.00	.97	.00
*College * Experience with Formal Academic Accommodations*	1	.24	.24	.03	.87	.00
Error	33	296.31	8.98			

For *Disability Etiquette Agreement*, Table 14b shows that there were lower mean rankings overall for this construct no matter the *College* or the *Experience* level of the faculty member. Although the effect sizes are not relevant due to the small eta for all variables $\eta=0$ for College, Experience and the interaction. Even though these effects are not significant, the lower rankings for the Disability Etiquette Agreement construct indicate that faculty across all colleges and experience levels do not feel that principles of disability etiquette are being adequately reflected in the general climate at Colorado State University.

Table 14b

Means, Standard Deviations, and N statistics for Disability Etiquette Agreement construct

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	13.67	4.51	3
	Experience	13.43	3.21	7
	Total	13.50	3.37	10
College of Health and Human Sciences	No Experience	13.73	1.74	11
	Experience	13.88	3.30	16
	Total	13.81	2.73	27
Total	No Experience	13.71	2.33	14
	Experience	13.74	3.21	23
	Total	13.73	2.87	37

1i. Are there differences in ranking on *Disability Characteristics Importance* for faculty members varying on *Experience with Formal Academic Accommodations* and or *College* and is there a significant interaction between *Experience with Formal Academic Accommodations* and *College*?

As shown in Table 15a, there are no significant differences in rankings on *Disability Characteristics Importance* for faculty members varying on *Experience with Formal Academic Accommodations* and *College* and is there is no significant interaction between *Experience with Formal Academic Accommodations* and *College* considering *Disability Characteristics Importance*.

Table 15a

Two-Way Analysis of Variance for Disability Characteristics Importance as a function of College and Experience with Formal Academic Accommodations

Source	df	SS	MS	F	p	Partial η^2
College	1	3.10	3.10	.21	.65	.01
Experience with Formal Academic Accommodations	1	10.70	10.70	.71	.40	.02
College * Experience with Formal Academic Accommodations	1	11.41	11.41	.76	.39	.02
Error	35	524.29	14.98			

For *Disability Characteristics Importance*, the highest mean rankings were from faculty members with *No Experience with Formal Academic Accommodations* in the School of Engineering. Table 15b shows the means and standard deviations for the construct *Disability Characteristics Importance*.

Table 15b

Means, Standard Deviations, and N Statistic for Disability Characteristics Importance

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	21.33	2.52	3
	Experience	18.67	5.79	6
	Total	19.56	4.93	9
College of Health and Human Sciences	No Experience	19.27	2.45	11
	Experience	19.32	3.97	19
	Total	19.30	3.45	30
Total	No Experience	19.71	2.52	14
	Experience	19.16	4.35	25

	Total	19.36	3.77	39

1j. Are there differences in ranking on *Disability Characteristics Agreement* for faculty members varying on *Experience with Formal Academic Accommodations* and or *College* and is there a significant interaction between *Experience with Formal Academic Accommodations* and *College*?

In regards to *Disability Characteristics Agreement,* there are no significant interactions between *Experience with Formal Academic Accommodations* and *College*. As shown in Table 16a, there were no significant P values for the main effects of *College* and *Experience* or the interaction.

Table 16a

Two-Way Analysis of Variance for Disability Characteristics Agreement as a function of College and Experience with Formal Academic Accommodations

Variable and source	*Df*	*SS*	*MS*	*F*	*P*	*Partial η^2*
College	1	21.98	21.98	1.17	.29	.03
Experience with Formal Academic Accommodations	1	.07	.07	.00	.95	.00
*College * Experience with Formal Academic Accommodations*	1	40.38	40.38	2.15	.15	.06
Error	33	296.3	18.76			

There are no significant differences in rankings on *Disability Characteristics Agreement* for faculty members varying on *Experience with Formal Academic Accommodations* or *College.*

Table 16b

Means, Standard Deviations, and N for Statistic for Disability Characteristics Agreement

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	16.00	7.21	3
	Experience	13.57	6.29	7
	Total	14.30	6.27	10
College of Health and Human	No Experience	11.60	1.84	10

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Sciences	Experience	14.23	3.93	17
	Total	13.26	3.52	27
Total	No Experience	12.62	3.86	13
	Experience	14.04	4.60	24
	Total	13.54	4.36	37

1k. Are there differences in ranking on *Universal Design for Instruction Importance* for faculty members varying on *Experience with Formal Academic Accommodations* and or *College* and is there a significant interaction between *Experience with Formal Academic Accommodations* and *College*?

Table 17a

Two-Way Analysis of Variance for Universal Design for Instruction Importance as a function of College and Experience with Formal Academic Accommodations

Variable and source	*df*	*SS*	*MS*	*F*	*p*	*Partial η^2*
College	1	.64	.64	.10	.75	.00
Experience with Formal Academic Accommodations	1	20.65	20.65	3.35	.08	.09
*College * Experience with Formal Academic Accommodations*	1	14.46	14.46	2.35	.13	.06
Error	36	221.8	6.16			

As shown in Table 17a, there are no significant differences in rankings of *Universal Design for Instruction Importance* for faculty members varying on *Experience with Formal Academic Accommodations* or *College* and there is no significant interaction between *Experience with Formal Academic Accommodations* and *College* in regards to *Universal Design for Instruction Importance*. As shown in Table 17b, for Universal Design for Instruction Importance, the mean rankings for the College of Health and Human Sciences were similar for faculty members with both levels of Experience and No Experience.   For the School of Engineering, faculty members with *No Experience with Formal Academic Accommodations* gave the highest

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mean rakings of *Universal Design for Instruction Importance M=*22.00. This is in contrast to the

lower *Importance* ranking for this construct from faculty members in the School of Engineering

with Experience with Formal Academic Accommodations, *M=*18.71.

Table 17b

Means, Standard Deviations, and N for the Universal Design for Instruction Importance Construct

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	22.00	2.00	3
	Experience	18.71	2.81	7
	Total	19.70	2.95	10
College of Health and Human Sciences	No Experience	20.81	2.23	11
	Experience	20.53	2.55	19
	Total	20.63	2.40	30
Total	No Experience	21.07	2.16	14
	Experience	20.04	2.69	26
	Total	20.40	2.54	40

Although there are no statistically significant interactions (Table 17a) or main effects of *College*

and *Experience with Formal Academic Accommodations* (Table 17b) there was a medium to

large effect size for *Experience with Formal Academic Accommodations* ($\eta =$.30) and a small to

medium effect ($\eta = $.25) for the interaction of *College* and *Experience with Formal Academic*

Accommodations.

      11. Are there differences in ranking on *Universal Design for Instruction Agreement* for
             faculty members varying on *Experience with Formal Academic Accommodations*
             and or *College* and is there a significant interaction between *Experience with*
             Formal Academic Accommodations and *College*?

For the *Universal Design for Instruction Agreement* construct, the rankings may depend

on whether the person is in the College of Engineering or the College of Health and Human

Sciences. As shown in Table 18a, the interaction of *College* and *Experience with Formal*

Academic Accommodations with *Universal Design for Instruction Agreement* is significant *p*=.

03. This indicates that in the College of Health and Human Sciences, faculty with no experience

ranked the construct *Universal Design for Instruction Agreement* lower than faculty with

experience.

Table 18a

Two-Way Analysis of Variance for Universal Design for Instruction Agreement as a function of College and Experience with Formal Academic Accommodations

Variable and source	df	SS	MS	F	p	Partial η^2
College	1	22.42	22.42	2.99	.09	.08
Experience with Formal Academic Accommodations	1	13.56	13.56	1.81	.19	.05
College* *Experience with Formal Academic Accommodations*	1	38.97	38.97	5.19	.03	.14
Error	33	247.85	7.51			

The interaction of *Experience with Formal Academic Accommodations* and *College* for

Universal Design for Instruction Agreement is significant (Table 18a), indicating that the effect

of *Experience with Formal Academic Accommodations* on *Universal Design for Instruction*

Agreement may depend on the college of the faculty member (Figure 3). In Engineering, the

faculty with no experience reported higher *Universal Design for Instruction Agreement* rankings
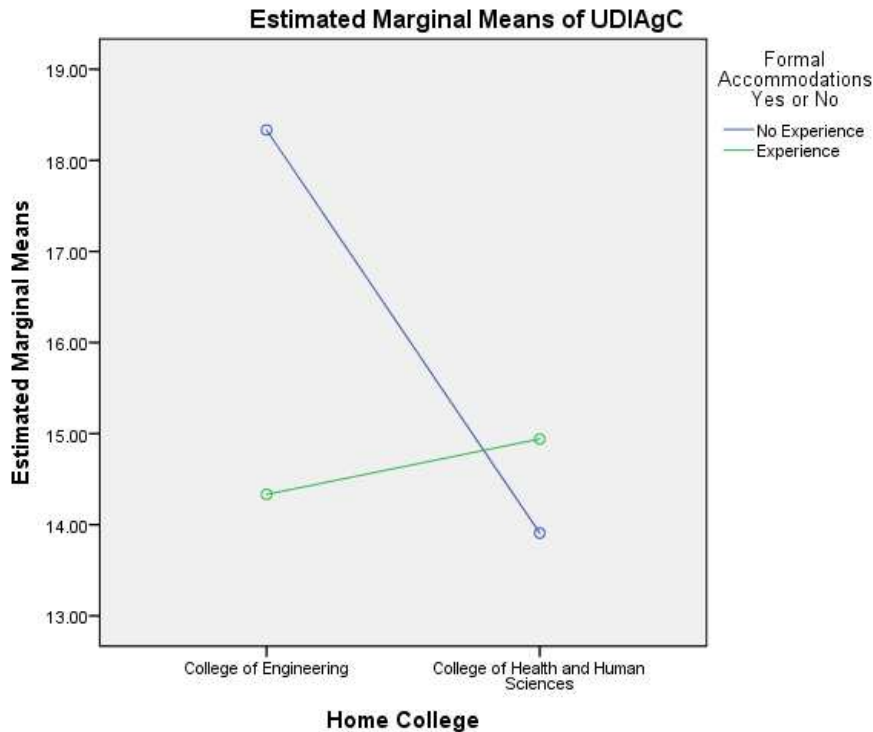
(Figure 3).

Figure 3. Results from ANOVA interaction showing the differences in rankings for the *Universal Design for Instruction Agreement* construct. In the School of Engineering faculty members with *No Experience with Formal Academic Accommodations* had high mean rankings for *Universal Design for Instruction Agreement* while in the College of Health and Human Sciences faculty with *No Experience with Formal Academic Accommodations* had low mean rankings for the same construct. This is a *disordinal* interaction indicating that for faculty with *No Experience with Formal Academic Accommodations* the mean ranking for *Universal Design for Instruction Agreement* is high in the School of Engineering and low in the College of Health and Human Sciences. *The degree of Universal Design for Instruction Agreement* depends on both the college and the experience level of the faculty member.

For *Universal Design for Instruction Agreement*, the main effects of *College* and

Experience with Formal Academic Accommodations are not statistically significant (Table 18a).

For the College of Engineering, as shown in Table 18b, faculty with No *Experience with Formal*

Academic Accommodations had higher mean rakings *M*= 18.3, than faculty with *Experience with*

Formal Academic Accommodations M= 14.3, on the *Universal Design for Instruction Agreement*

construct. The mean construct rankings in the College of Health and Human Sciences as shown

in Table 18b, were for faculty with no *Experience with Formal Academic Accommodations M*=

14 and for faculty members with *Experience with Formal Academic Accommodations M*=15.

Table 18b

Means, Standard Deviations, and N Statistic for Universal Design for Instruction Agreement

Home College	Formal Accommodations Yes or No	Mean	Std. Deviation	N
College of Engineering	No Experience	18.33	5.13	3
	Experience	14.33	2.34	6
	Total	15.67	3.74	9
College of Health and Human Sciences	No Experience	13.91	1.44	11
	Experience	14.94	3.03	17
	Total	14.54	2.55	28
Total	No Experience	14.86	3.03	14
	Experience	14.78	2.83	23
	Total	14.82	2.87	37

The most significant finding for the mean rakings for the Universal Design for Instruction

Agreement Construct was from the College of Engineering. For faculty with No Experience

with Formal Academic Accommodations, the mean rakings of 18.33 shows that for these faculty

members, the general climate of Colorado State University does reflect principles of Universal

Design for Instruction. The eta for the *College* variable was .28 which is a medium to large

effect size, for the *Experience* variable the eta was .22 which is a medium effect, and the eta for

the interaction was .37 which is a much larger than typical effect size.

Research Question 4 Correlation

For research question 4, to determine the association between the variable *number of*

accommodations provided and the rankings on the constructs a Spearman's Rho was calculated

using IBM SPSS. The Spearman's Rho calculation was selected because the *number of*

accommodations provided variable is skewed, (1.71). The full results of the Spearman

correlation are listed in Appendix D.

4. What are the associations between the *number of accommodations provided* for

students with disabilities and rankings on the factors of Legal, Accommodations

policy, Accommodations willingness, Disability etiquette, Disability

Characteristics, and Universal design?

The result of the Spearman Rho indicates that there are no significant associations

between the *Number of accommodations provided* and the constructs: *Legal*, *Accommodations*

Policy, *Accommodations Willingness*, *Disability Etiquette*, *Disability Characteristics*, and

Universal Design for Instruction. However, the association between *Importance* rankings on

Accommodations Willingness and *Number of Experiences with formal accommodations*, was

significant $r=-.37, p = .04$ (Table 19a), which is a medium effect size according to Cohen (1988).

The direction of this correlation is negative indicating that as the *Experience Number* increases

the *Accommodations Willingness Importance* ranking decreases.

Table 19a

Spearman's Rho Correlations for Survey Constructs & Experience Number

	Legal I	Legal A	Policy I	Policy A	Will I	Will A	UDI I	UDI A	Char I	Char A	Eti I	Eti A
Exp N	-.03	-.03	-.03	.06	**-.37**	-.03	-.11	.01	.00	.27	.06	.07
Sig	.87	.86	.89	.74	**.04**	.87	.55	.97	.99	.15	.74	.70

Note: Spearman correlation was conducted because the variable of Experience Number is skewed. The only significant correlation for Experience Number and the twelve survey factors was for Willingness Importance.

Pearson Correlation

Pearson correlations were calculated to evaluate the associations among the twelve

survey factors. Appendix D shows the full results for the Pearson correlations between the

survey factors. Table 19b shows the correlations among the Importance and Agreement rakings

from the survey factors. There were a several significant associations between factors of

Importance and *Agreement* for three of the six survey constructs. For the *Legal* construct, there

were no significant correlations between *Importance* and *Agreement* rankings. There were also

no significant correlations between the *Importance* and *Agreement* rankings for the *Policy* construct.

Table 19b

Pearson Correlations of Twelve Survey Constructs

	Legal A	Policy A	Willingness A	Characteristics A	Etiquette A	Universal Design A
Legal I	**.15**	.03	.41	.05	.03	.19
Policy I	.30	**.23**	.31	-.05	.20	.15
Willingness I	.11	-.02	**.44**	.06	.03	.04
Characteristics I	.35	.35	.26	**.37**	.30	.46
Etiquette I	.26	.25	.20	.05	**.34**	.07
Universal Design I	.42	.35	.47	.27	.35	**.34**

Note: Table 19b shows the correlations between *Importance* and *Agreement* rankings on the survey constructs, they are highlighted in bold. For Legal and Policy, constructs there were no significant correlations.

As shown in Table 19b, there were some correlations among the *Importance* and *Agreement* rankings on the survey constructs. For example, the *Characteristics* construct *Importance* and *Agreement* factors were correlated r=. 37 and Willingness *Importance* and *Agreement* rankings were correlated r=. 44, medium to large effect sizes (Morgan et al., 2011).

Research Question 5 Qualitative Analysis

The final research question was explored with the open-ended survey question asking faculty members to share their experiences regarding interactions that they have had regarding accommodations for students with disabilities.

5. What perspectives do faculty members have regarding providing accommodations for students with disabilities?

The survey responses were compiled into one transcript and uploaded into the NVivo program for initial analysis. The survey transcript was reviewed several times and the researcher highlighted common words, ideas, and comments with different colors to code the responses. A word count was conducted to identify words most commonly cited in the data. The most commonly used words were student(s), class, accommodations, disability, RDS (Resources for Disabled Students), time, needs, access, learning, disabled, support, instructor. In addition to completing a word count, exploratory data analysis was further conducted by creating an image using the terms from the qualitative data. A word cloud was generated using the web site www.tagul.com to provide a visual representation of the word patterns in the data. This visual representation is presented in the discussion section, figure 4. According to Cidell, (2010) "Content clouds are a type of visualization that summarizes the contents of a document by depicting the words that appear most often in larger, darker type within the cloud. When utilized as a form of qualitative GIS, content clouds provide a powerful way to summarize and compare information from different places on a single issue" (p. 514).

Once the codes were determined, they were combined into themes by topic. "Themes in qualitative research (also called categories) are broad units of information that consist of several codes aggregated to form a common idea" (Creswell, 2013, p. 186). The codes and the patterning of themes from the qualitative data were developed from a pragmatic, interpretive, perspective. According to Creswell, (2013), the use of an interpretive framework grounded on pragmatism "will focus on the practical implications of the research and emphasize the importance of conducting research that best addresses the research problem" (p.p. 28-29). A summary of the open ended responses and the corresponding themes and codes are outlined in Table 20.

Table 20

Summary of Themes and Codes from Survey Responses

Themes	Codes	Examples
Source or facilitator of accommodation/ support/ process	RDS, Faculty, Student as self-advocate, Student services	"The students have learned to advocate for their needs." "I find students with disabilities have needs far beyond the accommodations they are given at RDS." "It is often assumed that professors need to make-up the gap"
Accommodations documentation, implementation and type.	Aids to student- note taker, interpreter, extra time	"The primary accommodation, extended test taking time and environment, seem to truly impact the students' success." "Over a third of my class had double time due to anxiety." "I had a student with hearing impairment that required a note-taker to sit with her in class"
Disability Characteristic	Hidden disability, physical disability, visual and hearing impairments	"It is relatively easier to recognize and accommodate students with physical disabilities than students who have mental, emotional, or TBI wounds." "I have had many students with Traumatic Brain Injuries, OCD, anxiety, post-traumatic stress, bipolar, and other internal challenges"
Concern about barriers to accessibility	Accommodations process, issues with documentation, knowledge and experience gap for faculty	"It is often assumed that professors need to make-up the gap which is unrealistic when we are not knowledgeable about what is needed in all the possible types of disabilities." "I also wasn't sure where to go for this information and how much was on my shoulders and how much the student needed to request through disability support services. "
Faculty report mostly positive experiences	Instructor Role, open to RDS process, Student services seen as effective	"I've had wonderful experiences working with Resources for Disabled Students as well as the students themselves as together we identified how to best meet the learning needs of the students."

The first theme, *Source or facilitator of accommodation,* relates to the accommodations

process and consisted of words and phrases (Table 20) related to the process of providing

accommodations including questions regarding responsibility for facilitating the different aspects

of the accommodation process. Faculty reported that the accommodations process is often

facilitated by the office called Resources for Disabled Services or RDS as abbreviated by faculty

members on the survey. RDS was listed frequently as a positive source of support for student

accommodation assistance and faculty noted that the student themselves played a large role in the accommodations process.

The *Accommodations documentation, implementation and type* theme is composed of codes related to specific accommodation types and documentation. The most common types of accommodations noted by faculty members on the survey were note-taking assistance, extra time on exams and sign language interpreters. Faculty repeatedly noted issues with student ability to obtain documentation, limited availability of resources for faculty/students, and questions regarding how to implement accommodations effectively.

From the codes listed in Table 20, hidden disability, physical disability, and visual and hearing impairments, the theme *Disability characteristic* was developed. Faculty reported familiarity with a variety of disability characteristics and noted that invisible disabilities were more difficult to recognize and support. Physical accessibility was listed as a persistent issue for students with limited mobility.

The theme, *Concerns about barriers to accessibility*, is comprised of faculty member reports of roadblocks to accommodations including limited time and education necessary to support a diverse set of accommodations for students with disabilities. The codes in this theme were derived from words related to accommodations processes, documentation of student disabilities, and included emphasis on the knowledge and experience gap for faculty when it comes to understanding and facilitating accommodations for students with disabilities.

Even though faculty had listed concerns and barriers when asked about experiences providing formal accommodations there was a theme of *Faculty report mostly positive experiences*. The primary codes associated with this theme are listed in Table 20 including

receiving support from Resources for Disabled Students (RDS) office on campus, having

positive interactions with students with disabilities, and being open to continued education on

how to accommodate and support students.

CHAPTER 5: DISCUSSION

Accessibility and the rights of students with disabilities to pursue higher education is an important issue for every university. Even with the passage of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, the graduation rate for students with disabilities is significantly lower than for students without disabilities. There is a need for the education environment to be accessible to all participants and for universities to promote inclusion in all aspects of the college environment. Acquiring accessible course content is one of the most common barriers to success for students with disabilities (Timmerman & Mulvihill, 2015). This study was conducted to investigate the perspectives of faculty members regarding accommodations for students with disabilities to better understand how to support faculty in understanding reasonable accommodations, creating accessible course content, and working with students with disabilities.

This section provides a discussion of the study results including a summary of the most significant findings, implications, and suggestions for future research and practice. The *Faculty Priorities and Understanding of College Students with Disabilities Scale* (Cook, et al., 2009) was sent out as an electronic survey to faculty members in the School of Engineering and the College of Health and Human Sciences at Colorado State University. In addition to the quantitative survey items, this survey included additional questions that asked for the number of formal accommodations provided to students with disabilities in their teaching practice and asked faculty members to share stories of their experiences providing Formal Academic Accommodations. Although the survey yielded a small response from faculty, important insights regarding the interactions of faculty members with students with disabilities were gained. In

addition, the results of this study indicate that there is still a need to promote education and access to information on disability and the faculty role in accommodation of students on college campuses.

Overview of Significant Findings

From the forty-one completed surveys that were returned, there were thirty-one responses from the College of Health and Human Sciences and ten responses from the College of Engineering on the quantitative items. For the open-ended survey questions that requested faculty members to share a story regarding their experiences with providing Formal Academic Accommodations for students with disabilities, there were 20 responses to the qualitative inquiry.

Accommodations Willingness

The *Accommodations Willingness Importance* variable assesses faculty understanding of accommodations policies and the important reasons for providing different types of disability specific accommodations. Faculty members that reported more *Experience with Formal Academic Accommodations* gave lower rankings on the *Accommodations Willingness Importance* variable than faculty with less *Experience with Formal Academic Accommodations*. For faculty in both colleges, when the *Experience Number* increased, the *Accommodations Willingness Importance* ranking decreased. Perhaps this is because the faculty members with experience do not find it necessary for the *Willingness to accommodate* factor to be present, it is a function of their job and not a question of willingness. It could also be possible that faculty members who have had more experience are not favorable to the process and have negative attitudes.

The association between *Importance* rankings on *Accommodations Willingness* and

Number of Experiences with formal accommodations, was significant $r=-.36$, $p =. 04$. The

direction of this correlation was negative indicating that as the *Experience Number* increased the

Accommodations Willingness Importance ranking decreased. This result is similar to the

factorial ANOVA for *Accommodations Willingness Importance* and *Experiences with Formal*

Academic Accommodations as shown in Table 21. In the Cook et al., (2009) study that utilized

the *Faculty Priorities and Understandings of College Students with Disabilities* scale, it was

found that faculty members gave low rankings for *Accommodations Willingness Importance*.

Table 21

 Summary of Significant ANOVA Results for Survey Constructs

Construct	Statistic	Result	Effect Size
Accommodations Willingness Importance	Factorial ANOVA	For the variable *Experience with Formal Academic Accommodations* the main effect is significant for *Accommodations Willingness Importance*, $F=4.3$, $p= .04$	Eta .33, larger than typical effect
Universal Design for Instruction Agreement	Factorial ANOVA	The interaction of *College* and *Experience with Formal Academic Accommodations* with *Universal Design for Instruction Agreement* is significant $F= 5.19$, $p=. 03$	Eta .28 for the main effects of college, a medium effect size, Eta .22, a medium effect size for Experience & .37 eta for the interaction which is a larger than typical effect size

Zhang et al., (2010) found that even though faculty are willing to provide

accommodations accessibility overall is not being fully implemented on college campuses. As in

the case of Zhang et al., (2010), the findings of this study indicate that faculty indicate

willingness to provide accommodations but there are some barriers to implementation of fully

accessible content across the university.

Faculty willingness may not be the primary factor involved in implementation of

accommodations for students with disabilities across campuses. Previous research by Lombardi

and Murray (2011) suggests that the willingness of the faculty member to provide accommodations is not as important as the instructional practices of the faculty member when it comes to barriers for students with disabilities. In this present study, it may be possible that the faculty members with more experience providing accommodations understand that willingness is not the most important factor in the student accommodations picture. Many faculty respondents in this study gave low rankings of importance when it came to *Accommodations Willingness* while giving higher rankings of importance for *Universal Design for Instruction Importance*.

Universal Design for Instruction Agreement

There were six *Universal Design for Instruction* questions on the survey. The questions related to this construct included content about faculty member familiarity with assistive technology, the provision of course materials in a variety of formats, and the ability to connect with students with diverse learning styles. Faculty in School of Engineering with No *Experience with Formal Academic Accommodations* had higher mean rakings *M*= 18.3, than faculty with *Experience with Formal Academic Accommodations M*= 14.3, on the *Universal Design for Instruction Agreement* construct. Universal Design for Instruction is characterized by inclusive and accessible design for all aspects of course materials. The *Universal Design for Instruction Agreement* construct is a ranking of how much faculty agree that Universal Design for Instruction principles are being implemented on Colorado State University campus.

The interaction of *Experience with Formal Academic Accommodations* and *College* for *Universal Design for Instruction Agreement* was significant, indicating that the effect of *Experience with Formal Academic Accommodations* on *Universal Design for Instruction Agreement* may depend on the college of the faculty member. In the College of Health and Human Sciences, faculty with no experience ranked the construct *Universal Design for*

Instruction Agreement lower than faculty with experience. In Engineering, the faculty with no experience reported higher *Universal Design for Instruction Agreement* rankings. These results show opposite responses from the College of Health and Human Sciences and the School of Engineering. The *Agreement* ranking for this construct indicates that faculty members in the School of Engineering with little to no *Experience providing accommodations for students with disabilities* agree that *Universal Design for Instruction* is being implemented at Colorado State University. The opposite is true for faculty members in the College of Health and Human Sciences. The faculty members in the College of Health and Human Sciences that responded with little to no *Experience providing accommodations for students with disabilities* had lower agreement rankings M= 13.91, suggesting that these faculty members do not feel that *Universal Design for Instruction* is reflected in the general climate at Colorado State University.

Disability Etiquette

The results from the *Disability Etiquette* construct, although not statistically significant, are important to note because of their practical relation to improving the general climate for students with disabilities on college campuses. This survey construct consisted of five questions related to faculty interactions with students with disabilities including etiquette regarding disability stereotypes, confidentiality, and the inclusion of a disability statement on course syllabi. The results from the survey indicate that for the *Disability Etiquette Agreement* construct, faculty members in both the School of Engineering and the College of Health and Human Sciences provided lower rankings for survey items related to *Disability Etiquette.* The mean rankings from the ANOVA calculations on *Disability Etiquette Agreement* are: Engineering *No Experience M*=13.67, *Experience M*=13.43 and for College of Health and Human Sciences *No Experience M*=13.73 and *Experience M*=13.88. These findings are

significant because they suggest that the general climate at Colorado State University does not reflect appropriate disability etiquette as part of its institutional culture. In previous studies, students with disabilities have indicated that they have concerns regarding confidentiality and negative disability stereotypes from professors and classmates (Barnard-Brak et al., 2011; Timmerman & Mulvihill, 2015). The lack of trust and concern for negative consequence of disclosing their disability often results in self-accommodation which does not always offer the full spectrum of accessibility options that may be available to the student. Disability disclosure is sometimes viewed as a barrier within itself due to the effort it takes to disclose and seek assistance within the university environment.

Qualitative Report of Faculty Experiences

The comments from the qualitative, open-ended survey responses indicate that many students with disabilities provide their own accommodations and that faculty members are uncertain as to their role in the accommodations process. This finding is consistent with Phillips et al., (2012), in that students reported providing their own accommodations in many cases. The first theme *Source or facilitator of accommodation* emphasizes the uncertainty that faculty have regarding who facilitates the accommodations. Faculty members indicated that they desire education on accommodations for students with disabilities. They are unsure about how to be inclusive and Universal Design for Instruction could be beneficial to faculty to understand how their teaching styles affect learners.

The faculty comments also included responses related to specific types of disabilities and accommodations that they have experienced. The theme of *Accommodations documentation, implementation and type* shows that the faculty respondents are aware of specific disability types such as visual and hearing impairments and the accommodations necessary for those disabilities.

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Common accommodations listed by faculty included extra time on tests, note taking assistance, and alternative course materials.

The *Disability characteristic* theme includes codes for hidden disability, physical disability, visual and hearing impairments. Faculty frequently noted concerns regarding understanding accommodation needs for different disabilities including invisible disabilities. Faculty members noted many different types of disabilities accommodated including traumatic brain injury, hearing loss, visual impairment, anxiety, and post-traumatic stress disorder.

The *Concerns about barriers to accessibility* theme includes codes related to concerns that faculty members report related to the formal accommodations process including issues with documentation and the knowledge and experience gap for faculty. Some faculty noted that there are barriers for students that prevent them from obtaining the necessary accommodations. Other barriers to accessibility were time to implement accommodations, large class sizes, and lack of resources.

When commenting on their experiences with providing Formal Academic Accommodations, *Faculty reported mostly positive experiences*. This theme indicates that faculty members reported good experiences with the Formal Academic Accommodations process even if there are perceived barriers. The office of Resources for Disabled Students on Colorado State University's campus received positive comments on the survey.

Overall faculty members report that accommodations are available, that they are willing to give accommodations when reasonable, and that there are some questions as to what reasonable accommodations are and who is responsible for what. Faculty feel that students self-advocate and can get services for themselves but there is some concern and question over how much responsibility is on the student and how much responsibility is on the instructor. The

Resources for Disabled Services office is seen as effective but instructors indicate that more could be done for the general climate at Colorado State University to improve outcomes for students with disabilities. Figure 4 shows a word cloud of the most frequently listed words and phrases. The image from the qualitative data shows that the words frequently used in the open-ended survey question related to faculty experience with accommodations for students with disabilities including disability, student, need, accommodation, provide, class, note, RDS (Resources for Disabled Services), learn, and access.

Figure 4. Word Cloud of Open-Ended Survey Responses

Connections Between Quantitative and Qualitative Results

The qualitative responses from the faculty members that participated in this survey have connections to the survey constructs that are in the quantitative results. For the first qualitative theme of *Source or facilitator of accommodation*, faculty members reported questions regarding

their responsibility for providing accommodations and shared favorable attitudes regarding helping students receive accommodations for students with disabilities. One faculty respondent noted that when "students struggle in courses that I have taught and when I meet with them I discover that they may benefit from services that RDS can provide and I encourage them to contact RDS". This attitude is also reflected in the quantitative survey results that indicated faculty members in both colleges with all levels of experience tended to give positive rankings for the *Accommodations Willingness Importance* factor. However, the *Agreement* rankings on the survey that highlight the general climate or attitudes at Colorado State University were lower than the *Importance* rankings. For the theme, *Accommodations documentation, implementation and type*, it appears that faculty members are personally available and willing to provide accommodations but that the general climate, as reflected in the quantitative survey rankings, at Colorado State University is not fully inclusive of students with disabilities.

The quantitative and qualitative survey responses indicate that faculty members at Colorado State University agree that Accommodations for students with disabilities are important and that faculty members are willing to provide accommodations. Faculty members understand the legal and policy requirements involved. What faculty members are reporting at Colorado State University is that there is confusion regarding how to implement accommodations for students and what the proper etiquette and implementation practices are as an institution. This is reflected in the *Disability characteristic* theme generated from the qualitative responses. As one faculty member explained "So, the disconnect is between my willingness to help the student and my knowledge of how to best do so". The lower rankings on the survey are consistently related to the Agreement factors reflecting issues with the general climate regarding accommodations for students with disabilities on campus.

From both the quantitative survey responses indicating lower Agreement rankings for the general climate for accommodations for students with disabilities at Colorado State University and the qualitative feedback from instructors, it appears that individually faculty members are open and responsive to providing accommodations for students with disabilities. What is interesting is that collectively, the attitudes regarding dissemination of accommodations for students with disabilities, practices, and the climate for students with disabilities on campus is less than favorable. Regarding the theme *Concerns about barriers to accessibility,* some faculty members indicated concern regarding the difficulties that some students face acquiring accommodations. One faculty member noted that "The process to get disability favors the privileged with access to medical care, vehicles, parents, etc. the disadvantaged students receive a lower grade because they are unable to get these steps accomplished". Those comments and the rankings reflecting the general climate for students with disabilities suggests that there is a need for a campus wide initiative, such as an emphasis on Universal Design for Instruction practices, to enhance inclusive practices and provide more opportunities for faculty members, administration, and students to be fully involved in the campus community both physically and academically. In addition to the campus-wide needs for disseminating Universal Design information, there is also a need to disseminate this information locally, within the home department of the faculty members, in order to reach more individuals.

Limitations

The primary limitation of this research study is the small sample size resulting from the electronic survey administration. With the increase in technology, the daily demands of email in-boxes may be competing with the invitation to participate in a research survey. In this study, the initial request for participation in the survey was emailed from the Dean's office to the "All

Faculty" lists in the College of Health and Human Sciences. The initial survey invitation received a low response rate due the survey email being delivered into the "Clutter" boxes of the Microsoft Office email program preventing some faculty members from seeing the invitation. A second email invitation was sent two-weeks after the first to enhance participation. The second email was sent from the PI of the research project to attempt to gain additional interest in the survey (Edwards, Dillman, & Smyth, 2014).

For the School of Engineering, the Dean of the school agreed to email the survey request, which still resulted in a low response, most likely due to the known issues with electronic survey response rates being much lower than paper based survey rates (Nulty, 2008). It was surprising that even with the request to complete the survey coming from the leader of the School of Engineering that more faculty members did not respond to the initial invitation. Since the School of Engineering is not the researchers home department, a possible reason for the low response could be the lack of familiarity with the researcher and the study topic or the sensitivity of the study. The survey, although not completed by as many faculty members as I had hoped, did provide important insight into faculty perceptions and concerns regarding disability and accommodations in postsecondary education. In addition to the low-response rate from the survey, some participants indicated confusion over the *Importance* and *Agreement* rankings and did not feel fully comfortable with commenting on the climate as a whole at Colorado State University.

There are varying reasons why faculty members may not have responded to the online survey. For some, the invitation may have gotten lost in their email inboxes, for others the issue may not have been important enough for them to have time to complete the survey. The survey length may also have been a factor in the low response rate. The large amount of questions and

the two ranking scales of importance and agreement could have discouraged faculty members. Faculty members cited time as a barrier to providing accommodations and maintaining accessible course materials. Perhaps, time is a barrier overall. When it comes to understanding and addressing issues of marginalization in post secondary education environments, many people are not willing to invest the time needed to address the persistent inequities existing for students with disabilities.

Personal Reflections

According to Paulo Freire, (1970), "one important mechanism for challenging oppression, then, is to make visible and vocal the underlying assumptions that produce and reproduce structures of domination so that we can collectively begin to imagine alternative possibilities for organizing social life" (As cited in Bell, 2007, p. 11). The low response rate for this survey is a significant finding as it relates to the underlying assumptions, general attitude, and interest for issues related accommodations for students with disabilities in postsecondary education. Discussing the topic of disability, particularly the oppression and marginalization of individuals with disabilities, is sensitive for many people. According to Rocco and Fornes, (2010) "People with disabilities constitute possibly the largest minority group whose access to public places, education, and the political sphere has been limited" (p. 379).   Even though students with disabilities are welcomed on college campuses and there are legal supports in place, the individual attention to the issues of disability and ableist practices are in need of improvement. Even though this cannot fully be confirmed, out of the 41 survey responses gained in this study, many may have had some experience, possibly a personal connection, to someone with a disability or they themselves have a disability. This type of personal connection to the issue raises concern and interest overall. As one faculty member noted in their qualitative

survey response regarding stories of their experiences working with students with disabilities, "these (stories) are personal and private". The deficit of research on adult education and disability is concerning since access to education is an important civil rights issue (Rocco & Fornes, 2010).

From the perspective of social justice education, power in the higher education environment is maintained though hegemony (Bell, 2007). "Conditions of oppression in everyday life become normal when we internalize attitudes and roles that support and reinforce systems of domination without question" (Bell, 2007, p. 11). As faculty members, we are involved in the education of adults, which calls us to action to provide an inclusive education to all participants (Brookfield & Holst, 2011). In adult education, dismantling privilege is an important endeavor that primarily focused on race and gender, which are important in the conversation regarding social justice in education. According to Brookfield and Holst (2011), "dismantling privilege calls for action on all fronts… and one of the most elusive projects facing members of the dominant class who support a radical agenda is to learn how their own behavior directed at dismantling privilege actually secures its continuance" (p. 206). This research study and faculty survey is a first step towards broadening the conversation on inclusion in higher education.

Another important step in addressing ableist privilege and inequity on campus is to identify ways to move beyond the idea that accommodations in the physical environment are a sufficient solution to inclusion for students with disabilities on campus. Most colleges are able to provide access to their buildings and offer resources for students with physical disabilities but much more work can be done to provide access both physically and cognitively. It appears that with the act of making basic accommodations available we are shortening the conversation on

full inclusion in higher education for students with differing abilities. A much larger cultural shift regarding the ways in which knowledge is disseminated, valued, evaluated, and shared is needed.   Negative attitudes regarding disability are reflected in the culture of the university as it persistently holds on to a limiting set of teaching practices, academic processes, and standards. A person's disability status should not limit their ability to participate in educational pursuits and it is the responsibility of all members of the community to work together to shift the culture from marginal inclusion to full participation. "Culture and belief systems support the attitude that disability is abnormal and pitiful" (Rocco & Delgado, 2011, p.7). However, this dominant and socially constructed view of disability is not our only option. Going forward, we should broaden the conversation regarding disability to recognize the manifestations of ableism embedded in our culture and to recognize that disability is not an expression of being less capable, worthy, or able to perform as any other member of society.

Implications for future research

Continued exploration into the university wide dissemination of inclusive education practices such as Universal Design for Instruction and further investigation into how to inform the university community regarding the accommodations process is warranted. A more detailed assessment of the relationship between the perceptions and practices of faculty regarding accommodations for students with disabilities should include an analysis of how information is disseminated to faculty regarding their role in the accommodations process. Future studies should explore the best ways to disseminate information and train faculty members on Universal Design and working with students with disabilities.

Another important aspect of future investigation would be to evaluate how well the faculty perspectives correspond with the experiences and perceptions of students with

disabilities. An ethnographic study of the campus environment could provide insight into the current climate on campus and to investigate the culture and attitudes of both students and faculty regarding accommodation and inclusion.

Additional research should focus more on the details about faculty perceptions and collective attitudes on campus regarding visible and hidden disabilities. This current study identified faculty concerns about specific disabilities and how to accommodate and work with students with hidden disabilities. Faculty members appear to understand the importance of providing accommodations and are willing to participate in the inclusion of students with disabilities in their classrooms however, they report being uncertain about what the expectations and guidelines are.

The differences between the individual attitudes of the faculty members and the collective attitudes on campus should be assessed to determine why faculty overall were less positive regarding the accessibility climate on campus. Exploring the disability etiquette construct and low rankings that faculty members provided overall could provide insight into the work that still needs to be done on perception of disability and inclusion of students with disabilities.

The willingness of faculty members to provide academic accommodations should be analyzed in regards to changes in attitudes based on experience. The survey findings suggested that as faculty member experience providing formal academic accommodations increased, their accommodations willingness decreased. Are faculty members less willing to provide accommodations because they did not have positive experiences in this regard? Or perhaps, is the low willingness ranking a result of a faculty attitude suggesting that willingness is not a factor because providing academic accommodations is a function of their jobs? More

consideration should be given to these questions about the relationship between experience and willingness of faculty members when it comes to working with students with disabilities.

If future researchers were to consider using the Faculty Priorities and Understanding of College Students with Disabilities Scale (Cook et al., 2009), they should consider evaluating the survey directions and wording to ensure that faculty respondents understand how to take the survey. This aspect is particularly important because of the noted confusion that some faculty members had regarding their understanding of how to rank the questions for Importance and Agreement. Researchers going forward should further clarify that *Importance* rankings are related to the individual view of the faculty member and the *Agreement* ranking is supposed to be a reflection of how much the factor is reflected in the general climate at the university. This type of ranking structure can yield important results regarding the university climate but researchers should make sure that the survey directions clearly state the differences between rankings on the factors. In addition, the survey constructs should be evaluated to determine if any categories could be combined or eliminated to reduce the length and redundancy of the survey questions.

Implications for Practice

The results of this study indicate that dissemination of disability accommodation training and information for faculty members should be accomplished at the program and department level. It appears that individual faculty members are supportive of accommodations for students with disabilities but there is a gap between individual faculty member willingness to provide accommodations and what is reflected in their opinions of the general climate regarding accommodations for students with disabilities at the university. The low agreement rankings on the survey show that more can be done to improve the inclusivity of the climate at the University. Even though most large universities have offices dedicated to supporting students

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with disabilities and faculty members in accommodations for students with disabilities processes, more work needs to be done to distribute this information within the local culture of each department and program on campus. In addition, special attention should be given to evaluating the current culture of the university regarding the difference between simply offering accommodations and full inclusion for students with disabilities. Many faculty members noted on the survey that hidden disabilities are harder to recognize and accommodate than the visible, physical disabilities. Efforts supporting full inclusion for students with disabilities should address persistent ableist thinking that marginalizes students due to dominant perceptions determining what a person with a disability can and can not do.

The low response rate from the survey is another indication that information for faculty regarding accommodations for students with disabilities should be disseminated at the department level. Many faculty members may receive a large volume of emails from office of their College Dean, which may lead to them disregarding mass email messages due to time constraints and other competing factors. It appears that faculty members are not intentionally avoiding information on accommodations for students with disabilities and inclusive education practices such as Universal Design for Instruction; they are just not receiving the message. In order for implementation of inclusive education practices to occur the message needs to be delivered to faculty members in a manner that is directly accessible and applicable to their daily work.

One example of implementing change at the program level is from the researchers own experience with the process to include a disability statement on the course syllabi for a department within the School of Education at the university. The researcher noted that the graduate program she was teaching courses for did not offer a disability statement on the

standard course syllabi.   An example accommodations statement from the Resources for

Disabled Students office at Colorado State University is noted below.

> If you are a student who will need accommodations in this class, please make an
> appointment to see me to discuss your individual needs. Any accommodation
> must be discussed in a timely manner prior to implementation.   A verifying
> memo from Resources for Disabled Students may be required before any
> accommodation is provided. (Resources for Disabled Students, Colorado State
> University, 2016).

The researcher brought the issue of the lack of accommodations statement on the course syllabus

to the attention of the program chair. The program chair was able to share the accommodations

statement information to all six of the faculty members teaching in the program at their monthly

staff meeting. The issue of adding an accommodations statement to all course syllabi was

immediately addressed at the program level by discussing the problem and collectively making

the decision to include the statement on all course syllabi going forward. Plans were made to

draft an accommodations statement and seek approval from the Office of Equal Opportunity on

campus. The accommodations statement for the program syllabi was written, approved by OEO,

and added to all syllabi in the program before the next monthly staff meeting.

Even though the action of including an accommodations statement on course syllabi is a

standard practice that is suggested by Universal Design for Instruction principles, this practice is

not widely used for all college courses at Colorado State University. The Resources for Disabled

Students office at Colorado State University includes inclusive teaching methods as a Universal

Design Principle. The ACCESS Project at Colorado State has offered training and workshops on

the topic of Universal Design and inclusive education practices. Even with the training available

at the University level, the knowledge is not reaching individual faculty members within their

respective departments. The suggestion and information for utilizing inclusive teaching practices

is accessible from the office of Resources for Disabled Students and other outlets at Colorado

State, yet the suggestion is not fully reaching the intended audiences. This change to the course syllabi was readily implemented at the program level because the researcher could bring attention to the issue in a faculty meeting allowing for quick evaluation and adoption of an accommodations statement for all course syllabi in the program. Additional information and tips on how to create accessible academic content are located in Appendix F.

Conclusion

The dissemination of accessibility accommodations in higher education environments is becoming more prevalent as the population of students with disabilities on college campuses increases. While faculty members are willing to provide accommodations for students with disabilities, there is still a need for support to aid them in their implementation. In addition to providing support for faculty regarding accommodations for students with disabilities, universities should increase their emphasis on inclusive education principles such as Universal Design for Instruction and focus on the dissemination of information at the program level. Just as the built environment is designed to accommodate individuals with disabilities, academic content can be created to have accommodative features built in to the design.

It is important to promote the use of Universal Design for Instruction to account for the need to accommodate students with varying types of disability including physical, developmental, mental, cognitive, and sensory needs. By increasing faculty knowledge and use of inclusive design strategies we can improve the accessibility of academic content encountered by students, thus reducing the need to provide accommodations after the content has been created. The implementation of universal design principles in postsecondary learning environments can help to change the dominant paradigm that privileges specific learning methods over others. By modeling change at the department and program level, inclusive

education practices such as Universal Design for Learning, can be shared with other faculty

members to improve outcomes and further promote equality on college campuses.

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Thank you for providing your input.

This is a survey of faculty attitudes and experiences regarding college students with disabilities. We want you to consider the following statements along two dimensions:

IMPORTANCE- how important the statement is to you.

AGREEMENT- extent to which you agree the statement represents the general climate/practices at _____(Insert University name)

Please use the following scale to rate the IMPORTANCE of each statement.
1 = Very Unimportant, 2 = Unimportant, 3 = Important, 4 = Very Important.

Please use the following scale to rate your AGREEMENT with each statement.
1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

Click the corresponding number for your rating of each dimension.

	Importance Rating	Agreement Rating
1. Faculty members at CSU understand the educational access provisions of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990.		
2. Faculty members understand that students with disabilities must have physical access to buildings on campus.		
3. Faculty members at CSU understand the process that students undergo to document their disabilities.		

4. Faculty members at CSU understand that students with disabilities are not required to disclose diagnostic and treatment information to course instructors.		
5. Faculty members understand that students must self disclose to Student Disability Services their disabling condition to receive accommodations.		
6. Faculty members understand that they are required to provide reasonable accommodations for students with documented disabilities.		
7. Faculty members understand that reasonable accommodations are determined on a case by case basis.		
8. Faculty members understand that reasonable accommodations do not alter the course content or objectives.		
9. Faculty members at CSU understand that reasonable accommodations do not give students with disabilities an unfair advantage.		
10. Faculty members understand that reasonable accommodations do not require them to lower their academic standards.		
11. Faculty members understand that reasonable accommodations enable students with disabilities to have		

the same opportunities as their non-disabled peers.		
12. Faculty members at CSU know what to do when a student is unhappy with the accommodations provided to him or her.		
13. Faculty members at CSU understand why accommodations for students with disabilities are necessary.		
14. Faculty members are willing to make accommodations for students with disabilities regarding note-taking (e.g., providing note takers, copies of notes, tape record lectures).		
15. Faculty members are willing to make accommodations for students with disabilities regarding test taking (e.g., providing untimed tests, alternate venues for tests, rephrasing of questions by proctor, or alternate formats for tests).		
16. Faculty members are willing to allow students with disabilities to do alternate or extra credit assignments.		
17. Faculty members are willing to make accommodations for students with disabilities regarding grading assignments, tests, and papers (e.g., giving partial credit for process even when the final answer is wrong, not grading misspellings, incorrect grammar and punctuation,		

allowing
 	
    a proofreader to review work before submission, allowing
 	
    the use of calculators or dictionaries).		

18. Faculty members are willing to allow course substitutions or waivers for students with disabilities.		
19. Faculty members are familiar with assistive technology that can facilitate learning.		

20. Faculty members' academic freedom permits them to
 	
    decide how they will provide accommodations for students
 	
    with disabilities in their courses.		

21. Faculty members understand that students with disabilities
 	
    are individuals just like all other students and do not share
 	
    common personality traits as a function of disability.		

22. Faculty members use person first language (e.g., "person
 	
    with a disability" rather than "disabled person") when
 	
    speaking about a person with a disability.		

23. Faculty members do not hold overgeneralized stereotypes about students with disabilities (e.g., disability is a constantly frustrating tragedy, all students with disabilities are brave and courageous, all students with learning disabilities are lazy).		
24. Faculty members are careful to protect the confidentiality of students with disabilities.		

25. Faculty members include a statement about the rights of students with disabilities on all course syllabi.		
26. Faculty members provide lecture and course material in a wide variety of formats and media.		
27. Faculty members present course content that can be understood by students with diverse learning styles and abilities.		
28. Faculty members present course content in a well-organized, sequential manner that is paced to account for variations in students' learning styles and abilities.		
29. Faculty members present course content in a well-organized, sequential manner that is paced to account for variations in students' learning styles and abilities.		
30. Faculty members have high expectations of success for all students.		
31. Faculty members design courses that promote interaction and communication among students and between students and instructors		
32. Faculty members know the characteristics and learning needs of students with learning disabilities.		
33. Faculty members know the characteristics and learning needs of students with mobility or orthopedic impairments.		
34. Faculty members know the characteristics and learning needs of students with Attention Deficit/Hyperactivity Disorder (ADHD).		
35. Faculty members know the characteristics and learning needs of students with psychiatric disabilities.		
36. Faculty members know the characteristics and learning needs of students who have hearing impairments or who are deaf.		
37. Faculty members know the characteristics and learning needs of students who have visual impairments or who are blind.		

38. Faculty members know the characteristics and learning needs of students with chronic illness.		

39.   What is your home college?

College of Health and Human Sciences
School of Engineering
Other

40.   In university courses that you have taught, approximately how many students with disabilities have formally requested that they be provided with accommodations for students with disabilities? _____

41.   If you have had experiences in your teaching practice with students with disabilities, please share a story or details regarding an interaction that you had:

Table of Survey Constructs and Corresponding Question Numbers

Construct	Question Numbers
Legal	1, 2, 3, & 4
Policy	5, 6, 7, 8, 9, 10 11, 12, 13, & 20
Willingness	14, 15, 16, 17, & 18
Etiquette	21, 22, 23, 24, & 25
Characteristics	31, 32, 33, 34, 35, 36, & 37
Universal Design for Learning	19, 26, 27, 28, 29, & 30

Note: Each question on the survey corresponds to specific disability related factors. The table below shows the breakout of the questions by construct.

Re: Inquiry RE: Faculty Priorities & Understanding

Re: Inquiry RE: Faculty Priorities & Understanding Regarding College Students with Disabilities Scale

Jacqueline,

Thank you for your interest in using the Faculty Priorities and Understanding Regarding College Students with Disabilities Scale. I am happy to give you permission to use the scale in your research. I used an online platform when I gave the survey but the attachment contains the questions.

Best,

Lysandra

Lysandra Cook, PhD
Associate Professor
Department of Special Education
University of Hawaii Manoa
Wist Hall 122
1776 University Ave
Honolulu, HI 96822
T805Y956[7956

Dear Participant,

My name is Jacqueline McGinty and I am a researcher from Colorado State University in the School of Education. We are conducting a research study on accessibility accommodations in higher education. The title of our project is Accessibility Accommodations in Higher Education: An Inquiry of Faculty Willingness and Practices. The Principal Investigator is Dr. Gene Gloeckner and I am the Co-Principal Investigator.

We would like you to take an anonymous online survey. Participation will take approximately 15-20 minutes. Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participation at anytime without penalty.

We will not collect your name or personal identifiers. When we report and share the data to others, we will combine the data from all participants. While there are no direct benefits to you, we hope to gain more knowledge on improving the learning environment for all students, including students with disabilities. There are no known risks associated with participation in this research. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential (but unknown) risks.

To indicate your consent to participate in this research and to continue on to the survey, please click here: _____

If you have any questions about the research, please contact Jacqueline McGinty at Jacqueline.mcginty@colostate.edu 303-775-3734 or Dr. Gene Gloeckner. Gene.Gloeckner@ColoState.EDU

If you have any questions about your rights as a volunteer in this research, contact the CSU IR at: RICRO_IRB@mail.colostate.edu; 970-491-1553.

Gene Gloeckner   Jacqueline McGinty

Professor   Doctoral Student

Table 19a

Spearman Correlations for Survey Constructs & Experience Number

	Legal I	Legal A	Policy I	Policy A	Will I	Will A	UDI I	UDI A	Char I	Char A	Eti I	Eti A
Legal I	1.0	.12	.63	.32	.67	.32	.57	.16	.51	.11	.34	.03
		.51	.00	.08	.00	.08	.00	.38	.00	.55	.06	.88
Legal A	.12	1.0	.28	.85	.12	.59	.42	.61	.32	.50	.25	.81
	.51		.13	.00	.51	.00	.02	.00	.08	.00	.18	.00
Policy I	.63	.28	1.0	.15	.49	.17	.43	.16	.51	.01	.30	-.07
	.00	.13		.42	.01	.37	.02	.38	.00	.97	.10	.70
Policy A	-.02	.85	.15	1.0	-.03	.56	.19	.78	.31	.67	.29	.49
	.90	.00	.42		.89	.00	.30	.00	.10	.00	.12	.01
Will I	.67	.12	.49	-.03	1.0	.40	.43	.09	.64	-.09	.42	.01
	.00	.51	.01	.88		.03	.02	.65	.00	.63	.02	.95
Will A	.32	.59	.17	.56	.40	1.0	.20	.49	.48	.37	.26	.26
	.08	.00	.37	.00	.03		.29	.01	.01	.04	.15	.16
UDI I	.57	.42	.51	.31	.64	.48	1.00	.24	.47	.23	.67	.36
	.00	.02	.00	.10	.00	.01		.20	.01	.21	.00	.05
UDI A	.16	.61	.01	.67	-.09	.37	.24	1.0	.43	.57	.08	.63
	.38	.00	.97	.00	.63	.04	.20		.02	.00	.65	.00
Char I	.51	.32	.30	.29	.42	.26	.47	.43	1.0	.30	.41	.31
	.00	.08	.10	.12	.02	.15	.01	.02		.10	.02	.09
Char A	.11	.50	-.07	.49	.01	.26	.23	.57	.30	1.0	-.06	.50
	.55	.00	.70	.01	.95	.16	.21	.00	.10		.75	.00
Eti I	.34	.25	.43	.19	.43	.20	.67	.08	.41	-.06	1.00	-.06
	.06	.18	.02	.30	.02	.29	.00	.65	.02	.75		.74
Eti A	.03	.81	.16	.78	.09	.49	.36	.63	.31	.50	.36	1.0
	.88	.00	.38	.00	.65	.01	.05	.00	.09	.00	.05	
Exp N	-.03	-.03	-.03	.06	-.37	-.03	-.11	.01	.003	.27	.06	.07
	.87	.86	.89	.74	.04	.88	.55	.97	.987	.147	.74	.70

Table 19b

Pearson Correlations of Twelve Survey Constructs

	Legal I	Legal A	Policy I	Policy A	Willingness I	Willingness A	Characteristics I	Characteristics A	Etiquette I	Etiquette A	Universal Design I	Universal Design A
Legal I	1	.15	.62	.03	.75	.41	.45	.05	.32	.03	.55	.19
Legal A	.15	1	.30	.88	.11	.70	.35	.67	.26	.82	.42	.75
Policy I	.62	.30	1	.23	.44	.31	.31	-.05	.53	.20	.50	.15
Policy A	-.03	.88	.23	1	-.02	.65	.35	.64	.25	.80	.35	.76
Willingness I	.75	.11	.45	-.02	1	.44	.36	.06	.38	.03	.60	.04
Willingness A	.41	.70	.31	.65	.44	1	.26	.47	.20	.54	.47	.62
Characteristics I	.45	.35	.31	.35	.36	.26	1	.37	.37	.30	.43	.46
Characteristics A	.05	.67	-.05	.64	.06	.47	.37	1	.05	.61	.27	.73
Etiquette I	.32	.26	.53	.25	.38	.20	.37	.05	1	.34	.66	.07
Etiquette A	.03	.82	.20	.80	.03	.54	.30	.61	.34	1	.35	.66
Universal Design I	.56	.42	.50	.35	.60	.47	.43	.27	.66	.35	1	.34
Universal Design A	.19	.75	.15	.76	.04	.62	.46	.73	.07	.66	.34	1

Note: Table 19b shows the significant correlation between survey constructs. The significant correlations are highlighted in blue. There were no significant correlations between the variables of College and Experience with Formal Academic Accommodations and those variable correlations are not listed on this table.

Table 3a

Internal Reliability Estimates of Survey Themes from Colorado State Data

Themes	Cronbach Alpha Importance	Cronbach Alpha Agreement
Legal	.82	.68
Policy	.83	.88
Willingness	.81	.83
Disability Etiquette	.56	.75
Disability Characteristics	.95	.95
Universal Design for Instruction	.76	.77

Note: Reliability estimates for the six survey factors for importance and agreement rankings. All Alpha estimates for importance are similar to the Cook et al., (2009) estimates with the exception of Disability Etiquette, which was lower than the initial survey findings. For the agreement Alpha measures, the six survey factor estimates are similar to the Cook et al., (2009) results.

Tips for Teaching Practice

1. Use headings & styles in Word, Power Point, and other documents.

2. Avoid using color as an identifier and/or to provide directions.

3. Use high-contrast styles.

4. Select fonts that are in the Sans Serif category.

5. Create Alternate (ALT) Text for images.

6. Choose videos that have closed captioning. When creating your own videos include captioning.

7. When scanning documents to PDF file, take steps to make them searchable.

8. Apply principles of Universal Design when creating learning materials. Examples:

   - Provide clear, consistent directions
   - Ensure that your course layout and structure follows a logical order
   - Materials presented provide diverse options for knowledge assessment.
   - Allow options for extended time and alternate formats on exams.

General Information on ADA

- **http://www.ada.gov/**

- **http://www.npr.org/2015/07/24/423230927/-a-gift-to-the-non-disabled-at-25-the-ada-improves-access-for-all**

Universal Design for Learning

- **http://www.udlcenter.org/**

- **http://www.cast.org/our-work/about-udl.html#.VhNJaBNViko**

PowerPoint Tips

- http://webaim.org/techniques/powerpoint/

Using ALT Text for Images

- **http://webaim.org/techniques/alttext/**

Closed Captioning of Videos

- **https://support.google.com/youtube/answer/2734796?hl=en&vid=1-635795701555730146-1246538290**

- **http://nomorecraptions.com/**

Scanned PDF Files

- http://accessibility.colostate.edu/pdfScanned.cfm