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EXAMINING THE EFFECTS OF DISABILITY SERVICES ON STUDENT SUCCESS IN HIGHER EDUCATION

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UNIVERSITY OF NORTHERN COLORADO

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The Graduate School

EXAMINING THE EFFECTS OF DISABILITY SERVICES
ON STUDENT SUCCESS IN HIGHER EDUCATION

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of Master of Arts

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Department of Sociology

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This Thesis by: Rebecca Jayne Smith

Entitled: *Examining the Effects of Disability Services on Student Success in Higher Education.*

has been approved as meeting the requirement for the Degree of Master of Arts in College of Humanities and Social Sciences in the Department of Sociology.

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ABSTRACT

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Disabled students in higher education are provided resources through reasonable accommodation, or modification of university offerings. This affords the disabled student equal opportunity to benefit from those programs, services, and facilities despite the limitations imposed by their disability. This practice is historically informed by the medical model of disability, and legal reforms such as the Americans with Disabilities Act in 1990 and the Rehabilitation Act in 1973. Most research in this area has found that reasonable accommodation is effective for "leveling the playing field" for disabled college students. Yet, some researchers argue that Universal Design, the composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, can remove barriers altogether while increasing student engagement and retention. Nevertheless, little change has occurred on the organizational level at institutions of higher education to move toward Universal Design and embrace the framework of the social justice model of disability. The present study analyzed institutional data (N=740) to identify educational trends, success, and disability resource utilization at a mid-sized 4-year institution amongst disabled students. Data were analyzed to better understand the relationship between disabled students and their either active or inactive use of available resources and its impact on academic success (GPA). Findings reveal both student and program level evidence to support a shift within

disability service models from the medical model of disability to the social model of

disability. Results and recommendations are discussed considering shifts in disability

resource policy and practice from the medical to the social model, as well as, how

institutional reform should include a focus on universally designed campus practices.

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CHAPTER I

INTRODUCTION AND RESEARCH QUESTION

Since the passing of legislation including the Vocational Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) in 1990, and the Americans with Disabilities Act Amendments Act (ADAA) in 2008 the number of students seeking opportunity through higher education has increased. The National Center for Education Statistics (NCES) shows 19.4% of undergraduates and 11.9% of graduate students reported having a disability (NCES 2015). These numbers are conservative as they only include those students willing to disclose their disabilities to institutions of higher education and do not encompass those who, for various reasons, are unwilling to disclose (Cawthon & Cole 2010; Collins & Mowbray 2008; Marshak et al. 2010). As more students with disabilities are accessing higher education, and attention to equity and inclusion in higher education is advancing, new questions emerge as to whether the educational experience for disabled students[1] is equitable to the experiences of their non-disabled peers.

Historically, most disability services offices at institutions of higher education were not established to promote inclusion but rather as a response to the new legislation. A 1996 study of disability service programs found only 11% of those programs in existence prior to the passing of the Rehabilitation Act of 1973, leaving 89% established

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[1] The terms used to discuss disability vary. See further discussion of why 'disabled' is used as the preferred terminology for this research on page 13.

post legislature (Madaus 2011). Section 504 of the Rehabilitation Act requires institutions of higher education to "consider the applications of qualified students with disabilities and to implement necessary accommodations and auxiliary aids for students with disabilities" (Madaus 2011:10). Madaus also points out that the passing of the ADA in 1990 led to the development of many disability service programs in higher education due to the increased focus on disability rights as civil rights.

Because of the historical context through which these service offices were established, disability status is often excluded from conversations regarding equity and inclusion on college campuses (Kimball et al. 2016) and is often ignored when determining the distribution of resources for disability inclusion efforts *other than* the minimum of what is required by law; accommodations as required by the ADA and Section 504 of the Rehabilitation Act of 1973. Accommodations are modifications or alterations of university offerings: facilities, policies, course delivery, activities, etcetera, in order to provide the disabled participant equal opportunity to benefit from those offerings despite the limitations experienced by the impairments of their disabilities. Some examples of this are: captioning for video materials, books in alternative accessible formats, extending the testing time for time-limited exams, and auxiliary aids for communication access. These accommodations are reactive; requiring modification and changes to curriculum, materials or physical spaces at institutions that were not originally designed with the disabled student in mind. Although mandated accommodations have historically promoted accessibility for students in higher education, they are also a tangible example of ableism which is defined as the societal othering or differentiation of disabled people as a group, in favor of valuing the "normal" or "able-bodied" person

(Kruse and Oswal 2018). In other words, ableism can be described as an ignorance that barriers for disabled people are often constructed by society and are, rather, viewed as obstacles of personal impairment that the disabled person should learn to overcome.

Ableist perspectives and the accommodations approach to working with students in higher education are rooted in the Medical Model of Disability which suggests that disability or impairment is an unwelcome, unwanted quality that should be eradicated rather than embraced (Shifrer and Frederick 2019). The accommodation minded approach to serving students with disabilities in higher education does not provide students with an *equitable* university experience when compared to their non-disabled peers or take into consideration disability as a matter of equity and inclusion. Conversely, an alternative approach to higher education for disabled students can be found within the concept of Universal Design, the principles of which were originally developed for the built environment but have become a theory used to address learning in higher education in the form of Universal Design for Learning (UDL) (Madaus 2011). According to the National Disability Authority website (2020), Universal Design (UD) is defined as "the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability." The shift from accommodation to full inclusion is rooted in the Social Model of Disability which addresses that disability is a result of barriers imposed by society. According to Loewen and Pollard (2010):

> Disability stems from the failure of society to adjust to meet the needs of disabled people. This model [Social Model of Disability] does not deny illness or the need for medical intervention; rather, it offers a lens that brings a clearer understanding of barriers created by society's attitude toward disabled people and how these barriers affect them (p.9).

This project aims to examine the effectiveness of the current services approach at a midsized institution of higher education, which currently employs both an accommodations approach and incorporates some elements of the social justice model of disability with a universal design approach. Results will help explore better ways for educators, practitioners and campus administrators to meet the needs of the growing population of students seeking higher education. The existing research related to disabled students, while not generally lacking, is difficult to practically apply to the advancement of higher education policy and practice. This is largely due to the lack of focus and boundaries for research on students with disabilities in higher education (Kimball et al. 2016). For example, this research can be found in journals of varying topics including; vocational rehabilitation, social work, medical and psychology research, disability studies, education, and sociology. This broadness makes it difficult to lasso the relevant theory and research that is necessary to determine best practices for institutions of higher education when meeting the specific needs of disabled students. The purpose of this study is threefold:

1. To identify educational trends, success, and disability resource utilization at a mid-sized 4-year institution amongst disabled students and to build on the current research.

2. To inform a shift in disability resource service delivery, policy and practice from the medical to the social model.

3. To guide institutional reform to include a focus on universally designed campus practices.

The literature review will examine the accommodations approach and Universal Design, as well as disability resource office and campus policy and practice through the different lenses of the preexisting models: The Medical Model of Disability and The Social Model of Disability. Quantitative research will explore the effectiveness of accommodations and identify disability trends that influence student success. Student success is operationalized in this study by cumulative and term grade point average (GPA). The research question and hypotheses that will define this study are as follows:

Q1 What are the educational trends in student success and disability resource utilization at a mid-sized 4-year institution amongst disabled students?

Q1a What do the trends suggest in regard to building on research related to the medical vs. the social model of disability resource programming?

Q2 Are there identifying factors outside of accommodation that account for disabled student success?

 H1 Accommodations will have a positive impact on academic success, even when controlling for student major and student classification level.

Q3 Do academic accommodations impact student success?

 H1 Active use of specific accommodations will increase student success.

 H2 Students who are active with the disability service office will show higher levels of success.

The legislature supporting the rights of disabled people provides a foundation for civil rights and access to higher education for this marginalized group. However, re-evaluation of disability service programs and campus practices to consider disability as a matter of equity and inclusion and the provision of an equitable campus experience for disabled students when compared with their non-disabled peers is long overdue. The subsequent chapters will provide an in-depth analysis of these research questions in order

to deliver a landscape for disability professionals and university campuses to assess their

current policies, practices and procedures for disabled students in higher education.

CHAPTER II

REVIEW OF THE LITERATURE

DISABILITY AND SOCIOLOGY

There is debate regarding the question "what is disability?" in the sociological

field. Some argue that disability is defined by society while others maintain that it is

individual impairment that defines disability. (See Table 1 for a comparison of the

medical and social models of disability.) There is a distinct separation between biology

and society. The medical model of disability is on one end of the spectrum and the social

model of disability resides at the opposite end (Thomas 2004). However, complete

dichotomy between these two models would not represent a fair and accurate

representation of disability as a construct nor the disabled person's individual experience.

In fact, this dichotomization marginalizes disabled people as a group from society

(Shifrer and Frederick 2019). "Disability is a complex dialectic of biological,

psychological, cultural, and socio-political factors, which cannot be extricated except

with imprecision" (Shakespeare and Watson 2001:22).

Understanding of both the Medical and Social Models can be relevant and

employed appropriately depending on the focus and reasoning for doing so. Tom

Shakespeare (1996) believes the dichotomy can be explained by examining disability

identity. Specifically, when related to disability, the term "identity" has two different

uses. The first is as an action verb, as in being identified or labeled, or as in discovering

disabled people as a group. The second is as a reflexive verb, in terms of an individual

self-identifying as part of a larger group (Shakespeare 1996). A Foucauldian perspective suggests that the active verb use of "identity" subjects disabled people through social control: surveillance through social institutions such as schools, whereas the reflexive verb use of "identity" is the process of individuals communicating about and connecting with themselves. The social model of disability embraces the active verb use of "identity" while ignoring the personal narratives of the impact of an individual's impairments. Conversely, the medical model of disability focuses too strongly on the biological implications of impairment while ignoring the ways in which disability identity can be formed through action verb use in the form of social constructs, constraints, and barriers. According to Thomas (2004), "These contrasting approaches suggest that there is no unitary sociology of disability, but rather sociologies of disability that continue to offer quite different perspectives on the nature of disability" (p.570).

Within the field of sociology, there is rarely an active attempt to engage these two theories with one another and to the contrary they are often positioned in contrast when examining disability (Thomas 2004). However, there lies an intersection between these two areas when examining the current policies, practices, resources and legal constraints of social institutions. Some sociologists argue that disability more accurately lies on a spectrum between individual impairment and a misfit of that impairment within the social environment (Zola 1989/2005), necessitating a shift from thinking about these two models as dichotomous to thinking about the inclusion of those individuals with specific impairments within the social, attitudinal, architectural, medical, economic, and political environments. The consideration of both models can help inform and formulate policy and practice at institutions of higher education in order to practically evaluate and better

include the specific and unique needs of students with disabilities within these

constraints. "Zola argued that policies played an important role in the oppression or

emancipation of persons with impairments" (Guzman and Balcazar 2010:49).

Table 1. Comparisons between the medical and social models of disability discourse Haegele and Hodge 2016

Topic	Medical Model	Social Model
What is disability?	An individual or medical phenomenon that results from impairments in body functions or structures; a deficiency or abnormality	A social construct that is imposed on top of impairments by society; a difference
Access to treatment or services	Referral by diagnosis	Self-referral, experience driven
Targets of interventions	"Fixing" the disability to the greatest extent possible, "normalizing"	Social or political change in an effort to decrease environmental barriers and increase levels of understanding
Outcome of interventions	Normalized function; functioning member of existing society	Self-advocacy, changes in environment and understanding, social inclusion
The agent of remedy	The professional	Can be the individual, an advocate, or anyone who positively affects the arrangements
Effects on individuals who are typically functioning	Society remains the same	Society evolves to be more inclusive
Perceptions toward individuals with disabilities	The individual is faulty	The individual is unique
Cognitive authority	Scientists and doctors	Academics and advocates with disabilities
Perception of disability	Being disabled is negative	Being disabled, in itself, is neither positive or negative

THE MEDICAL MODEL OF DISABILITY

The medical model of disability defines disability as the limitations that result

from an individual's physical or mental impairment. The biological focus of this model

often results in a social deficit or social welfare perspective in which disability is the

direct result of a medical impairment, physical or mental difference (Loewen and Pollard

2010; Shakespeare 1996). This focus often segregates, labels and categorizes disabled

people by specific medical diagnosis or impairment, rather than recognizing the

perspective that the disabled community have a collective identity within the socio-

cultural context. One salient example of this perspective is the development of many charitable organizations which focus on "improving" lives or conducting research related to specific medical impairments such as; American Foundation for the Blind, March of Dimes, and the National Spinal Cord Injury Association. "Here we see a denial of the common social experiences which unite disabled people and focus on medical dimensions of difference" (Shakespeare 1996:95). In this model, the person is disadvantaged within society as a direct result of the limitations of their impairment (Guzman 2009) evidenced by lower socio-economic status, and limited or lack of access to social capital, education, employment and certain environments.

Within the medical model it is the responsibility of the disabled individual and medical professionals to fix, repair or ameliorate the impairment for the individual to live a satisfying and productive life. "The medical model suggests that problems faced by individuals with disabilities are independent of wider sociocultural, physical, or political environments" (Haegele and Hodge 2016:195). Unsurprisingly, the medical model of disability highlights the fact that authority on disability discourse lies with medical professionals, particularly discussions of the question "what is disability?" which shapes the identities of those in the disabled community. Because medical professionals approach disability through the lens of biology, the discourse of the medical model posits that disability is defined by a medical diagnosis; the label of impairment, deficit or limited functioning of an individual's biology (Haegele and Hodge 2016) and again, there is a component of social disadvantage or suffering that lies with the individual that must be ameliorated by fixing the individual and/or impairment (Haegele and Hodge 2016; Thomas 2004).

Further, the medical model identifies medical professionals as gatekeepers for disabled individuals regarding access to civil rights. In the early 20th century a disabled individual's personhood or even right to exist was determined by medical professionals who would implement extreme measures such as sterilization and marriage restrictions to prevent the persistence of the impairment (Shifrer and Frederick 2019). Though these extreme practices have since ceased, the underlying sentiment that medical professional's expertise trumps an individual's will, desires, and knowledge of their own needs persists and is evident in the ways that disabled folks experience limited access to resources and services. Medical professionals still act as gatekeepers for disabled students in that often, formal documentation of the disability is required to access certain accommodations which can be a barrier to access and inclusion. In this model it is the diagnosis and not an individual's needs that determine available resources and services (Haegele and Hodge 2016).

THE SOCIAL MODEL OF DISABILITY

The social model approaches disability from a socio-cultural understanding, rather than the biological focus of the medical model. Disability here is a construction of society and is a direct result of social processes and societal attitudes, beliefs and values. The social model is the general term used as a catchall for a disability perspective that challenges the medical model's focus on individual impairment and rather concentrates on using a socio-cultural lens from which to view disability (Hughes and Paterson 1997). This model is made up of several different iterations of similar ideas (Haegele and Hodge 2016; Shakespeare 1996). Both Haegele and Hodge and Shakespeare describe several variations of the social model or ways of defining disability as social construction. One among them highlights disability as a relationship with a discriminatory society. In this,

disability is defined not by individual impairment but by the disabling barriers imposed by society. In short, society disables the individual. These barriers can be; limited physical access within the built environment, political or policy related in the form of access to opportunity and resources, or attitudinal. Barrier removal to create a society of equity and inclusion is the focus.

In another variation, Shakespeare (1996) discusses the minority group approach. This approach coincides with the first but focuses more on disabled people as an oppressed minority group regarding access to political and civil rights. Many disability rights movements take this approach but have benefits to disabled groups in the form of advocacy for specific policy measures such as increased disability income or a larger share of social resources.

A third variation is a Weberian or Foucauldian approach to disability in which the identification of "disabled" as a societal category subjectifies disabled individuals and shifts the focus of their specific impairments to the policies and processes which are not inclusive of the disabled population. It is this subjectification that results in the disabling of the individual. Ian Hacking (1986:236) says of this phenomenon, "numerous kinds of human beings and human acts come into being hand and hand with our invention of the categories labeling them." It is important to note that within the social model of disability the language used in disability discourse is largely important and there is a specific distinction made between the terms "impairment" and "disability" (Haegele and Hodge 2016; Hughes and Paterson 1997; Loewen and Pollard 2010). (See Table 2 for a distinction between the terms "impairment" and "disability" in the social model of

disability.) A British activist group, the Union of Physically Impaired Against

Segregation (UPIAS) made the distinction:

> Thus, we define impairment as lacking part of or all of a limb, or having a defective limb, organ or mechanism of the body; and disability as the disadvantage or restriction of activity caused by a contemporary social organization which takes no or little account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities. Physical disability is therefore a particular form of social oppression (1997:14).

Impairment is described as the medical specificity of an individual's body or

mind. While the more contemporary social model posits that the individual's impairment

should be celebrated as a facet of diversity and not fully ignored (Loewen and Pollard

2010), the concept of "disability" is defined by the disadvantage imposed on the

individual by society because of society's lack of inclusion of the individual based on the

functional differences created by that impairment (Haegele and Hodge 2016).

This variation of the social model offers a clearer conceptualization of the way

society creates barriers for disabled people through an attitude that disability is

disadvantageous. Gill's Interactional or Socio-political Model of Disability (as cited by

Loewen and Pollard 2010:9) explains that disability is a difference, but it is neutral, and

that disability is a product of the interaction between the disabled individual and society.

The solution for barrier removal is via change agents who will change the way society

interacts with disabled individuals. This same idea is one of the major criticisms of the

social model. While impairment and the individual's experience of their impairment is

dominant in the lives of disabled people, the social model theoretically ignores the

distinction. Hughes and Paterson call for a broadening of the social model to include the

individual's experiences with impairment, "The social model of disability proposes an untenable separation between body and culture, impairment and disability" (1997:326).

Table 2: Distinction between the terms "impairment" and "disability" in the social model. Loewen and Pollard 2010.

Term	Medical Model	Social Model
Impairment	A physical or mental condition, deficit, or limitation that requires treatment or fixing	Lacking part or all of limb, organ or mechanism of the body
Disability	The condition of being unable to perform a task due to an impairment which is an individual burden, personal tragedy or individual problem	The disadvantage or restriction of activity caused by design of environments which exclude disabled persons from participation in mainstream social activities
Implication	The individual must adjust or become more normal to fit into society and the established environments	Society must adapt the design of environments. Individual differences are considered normal and accepted through the design of inclusive and flexible environments

Another important marker of the social model of disability is the promotion of disabled individuals claiming disability as their identity within a larger group as evidenced by the evolution of language used in the disability discourse. Terms such as cripple, handicapped, physically challenged, and wheelchair bound were replaced by "person first" language in the 1970s (Linton 1998) to focus on the individual and not the disability. After the passing of the Americans with Disabilities Act in the mid-1990s, disability activists and scholars reclaimed the term "disabled". "Rather than maintaining disability as a secondary characteristic, disabled has become a marker of the identity that the individual and group wish to highlight and call attention to" (Linton 1998:13). The various components of the social model aim to move society in relation to disability discourse: from one that discriminates against individuals with impairments to one that embraces individuals with impairments as a matter of equity and inclusion (Palmer and Harley 2012).

DISABILITY SERVICES AND HIGHER
EDUCATION: POLICY AND
PRACTICE

When we think about disability service models in higher education, it is

impossible to evaluate policy and practice without examining both the medical and social

models. (See a summary of the three approaches to disability service provision in Table

3). The establishment of laws which have prohibited discrimination against disabled

students and professionalized disability services in higher education (Americans With

Disabilities Act (ADA 1990) and Section 504 of the Rehabilitation Act (1973)), have not

provided any guidance for how disability service offices should best practice or

implement those services (Guzman and Balcazar 2010). The current approach for most

disability service models in higher education focuses on the individual (Guzman and

Balcazar 2010) and requires several actions of disabled students to qualify for and receive

services. The intent of the services is to retrofit or create alternatives within the learning

environments, physical environments and other social and recreational spaces on

campuses for disabled students to fully participate. While non-disabled students can

simply participate in their higher education experience, at majority of institutions,

disabled students must follow some widely accepted procedures in order to secure

services in order to participate (Guzman and Balcazar 2010).

From the social model perspective, the very existence of the disability service

(DS) office creates barriers for disabled students (Getzel and Thoma 2008; Kendall 2016;

Loewen and Pollard 2010; Ostiguy 2018). The Association of Higher Education and

Disability (AHEAD) created standards based in research for disability service providers

in higher education. While this has helped guide programmatic format, best-practices,

and service implementation for institutions in order to provide quality and consistency for

disabled college students, the standards are very much open to interpretation and hinge on

the perspective, values and world view of the institution and the disability service

professionals working at the institution (Guzman and Balcazar 2010). Therefore, while

specific procedures and services vary at each institution, they generally follow a

consistent format. Practices at DS offices generally require students to seek help from the

office and provide medical documentation, which tends to include a diagnosis of

disability in order to substantiate the need or qualification of the student to receive

services from the office (Loewen and Pollard 2010). The procedures fleshed out are as

follows: 1.) Upon acceptance to the institution, the disabled student must seek out and

identify themselves with the DS office. This typically includes some sort of intake and

registration process with the office. 2.) In order to qualify for services from the office, the

disabled student must provide medical documentation to support their "claim" that they

have a disability and are eligible for services. 3.) Disability service professionals

determine "appropriate accommodations" for the student. These determinations are

largely based on information given from the medical provider. As such, medical

professionals are often the gatekeepers for services at institutions of higher education.

The diagnoses and descriptions of symptoms and limitations which are used to determine

appropriate accommodations are provided by medical professionals and often do not take

into consideration the needs, wants or values of the disabled individual (Haegele and

Hodge 2016). Additionally, the provision of services relies on the DS staff member to be

able to properly evaluate the disability documentation. Further, there is a focus on legal

compliance when making these determinations: many institution's response to

accommodations is to do what is minimally required in order to maintain legal

compliance for the institution (Guzman 2009; Loewen and Pollard 2010; Ostiguy 2018). It is often perceived by the campus community that the DS professional is the expert on the disability and accommodation plan, rather than the student maintaining ownership of their own needs. 4.) Finally, because many services or accommodations need to be implemented in the learning environment, disabled students must disclose their disability related needs to faculty in order to receive certain academic accommodations. This notification is often in the form of an "official" accommodation letter from the DS office that lists the accommodations for which the DS office has determined that the student qualifies. While notifying faculty is necessary in order to provide services, this process can be isolating and impact the student who has been labeled and identified. Further, responsibility to accommodate is then almost entirely left to the practices of the faculty member for each individual class at the beginning of a semester, with not much time to thoughtfully consider the best pedagogical approach to their class to ensure inclusivity and success for the disabled student.

People in society "are socialized into thinking of disability in a medical model way" (Shakespeare 1996:106). The need to ameliorate or fix impairment can be found in the very existence of a specific office dedicated to providing accommodations to disabled students. An office that, as previously mentioned, was established due to legislation rather than a spirit of inclusion. As Linton (1998) points out, programs based on a model which aims to help disabled students gain basic access to education by providing special and often times segregated services is patronizing and does not align with disabled student's personal abilities, attributes, perseverance, or experiences and does not value disability as aspect of equity and inclusion (Harbour 2009). On the other hand, Guzman

and Balcazar's 2010 study shows that DS offices are attempting to include the principles

and philosophy of the social model into policy and practice. Their study, while

reinforcing that the individual approach is pervasive to the foundation of most DS offices,

also recognizes that many DS programs are incorporating social and universal approaches

into their programming.

Table 3: Three Approaches to Disability Service Provision (Guzman and Balcazar 2010:51)

Individual Approach
Looks at the individual and seeks strategies that will compensate or level the playing field.

Social Approach
Looks at the environment and seeks strategies to remove barriers

Universal Approach
Looks at the design and seeks to develop an environment inclusive of the largest number of persons possible.

The researchers surveyed DS office Directors and found that specific respondents

including: females, respondents with more experience, participants who were already

knowledgeable and supportive of a universal ideology, institutions with a higher number

of full-time staff, and institutions with the largest number of students tended to frame

their disability service delivery through a mixed approach. However, their results also

show difficulty with incorporating the social model in DS policy and practice:

> This study shows that despite the fact that many disability service providers speak
> the language of equality, rights, self-determination, and universal design, their
> actions are often implemented and guided by dealing with the individual's
> limitations. The principal investigator recognizes there always will be cases
> requiring one-on one attention. These cases, however, are not the only barrier to
> promoting a social or universal approach to service delivery; the real barrier exists
> because members of society have been and continue to be socialized by media,
> politics, religion, and the medical profession (Guzman and Balcazar 2010:57).

Despite the benefits of the social model in promoting inclusive education for

disabled students, there are some challenges for DS offices when trying to implement a

shift in programming from an individual or medical model to a social model. Limited

resources, institutional support and tools for implementation are among the challenges.

Most institutions do not provide per capita funding for disabled students while the

number of disabled students that institutions are serving has consistently increased

(Loewen and Pollard 2010). Lack of budgetary allocation can impact a DS office's ability

to make decisions for changing policy, practice and scope of programming, especially if

the institution narrowly focuses on legality to do what is minimally required in order to

maintain legal compliance for the institution (Guzman 2009; Loewen and Pollard 2010;

Ostiguy 2018). Finally, despite efforts for equity and inclusion, DS offices are still

expected to mitigate legal risk for the institution. This leads to service models, policies

and practices which are guided by a forced narrow interpretation of the ADA and Section

504 of the Rehabilitant Act and legal precedent rather than a spirit of civil rights, equity

and inclusion (Allan 2010; Guzman and Balcazar 2010; Loewen and Pollard 2010;

Madaus 2011).

ACCOMMODATION VS.
UNIVERSAL DESIGN

Researchers have identified several factors that contribute to the successes, as

well as, the barriers to success for disabled college students (Barnard-Brak et al. 2010;

Belch 2004; Davies et al. 2013; Kruse and Oswal 2018; Yssel, Pak and Beilke 2016).

Along with the extensive research identifying success and barriers, disability service

programs have been evaluated on their service models and how the services and

resources offered by various DS models can impact student success. The impacts of the

DS service models are influenced by either the medical or social models of disability.

The two most prevalent approaches within disability service models are the

accommodations approach and the universal design approach. The individual or

accommodation model of service is rooted in the medical model (Guzman 2009) of

disability while the concept of Universal Design is focused on social justice and inclusion

principles and therefore has roots in the social model of disability (Davies et al. 2013;

McGuire and Scott 2006).

Accommodation Service Model

In their 2016 study, Kim and Lee describe the provision of reasonable

accommodations as one of "the most critical tools to facilitate learning for students with

disabilities in higher education" (2016:41). Accommodations in disability service (DS)

programs are guided and protected by the Americans with Disabilities Act (ADA 1990)

as well as Section 504 of the Rehabilitation Act of 1973. Reasonable accommodation is

defined as the necessary academic, programmatic, or physical adjustments necessary to

ensure equal access to higher education for disabled students (Barnard-Brak et al. 2010).

Institutions of higher education are mandated to provide the accommodations or

academic adjustments (Kim and Lee 2016). Disabled students must follow the typical

process outlined above to secure these accommodations. It is also important to note that

while the ADA and the Rehabilitation Act apply to all levels of education, the legal

requirements differ. In K-12 education, educators identify disabled students and services

are innate. At the post-secondary level, institutions of higher education are not required to

seek out disabled students (Barnard-Brak et al. 2010) meaning that students who are often

not prepared for this change in advocacy must seek out and disclose their disability to the

DS office. Students may be apprehensive about this disclosure for a variety of reasons;

uncertainty about how to do so, the desire to assume a new, non-disabled, independent

persona upon entering college and apprehension about disclosure due to stigma and fears

about perception; some students with non-visible disabilities are subject to questions from faculty about the legitimacy of their disabilities (Barnard-Brak et al. 2010; Kimball et al. 2016; Kruse and Oswal 2018) or the belief that accommodations can be rejected by instructors on the grounds that they provide an unfair advantage for the disabled student over their non-disabled peers (Kimball et al. 2016, Kruse and Oswal 2018; Loewen and Pollard 2010).

Instructor self-efficacy around fully understanding and being knowledgeable about the administration of accommodations, as well as, having empathy for disabled students, directly impacts the students' ability to self-disclose and effectively utilize accommodations (Wright and Meyer 2017). DS professionals must often mediate or negotiate accommodations with faculty members which strips autonomy from the student and preventing the faculty member from coming up with creative solutions for an inclusive classroom environment (Loewen and Pollard 2010). The research also notes some important systemic challenges for students when seeking disability accommodations that can create barriers to this mode. Of note, inconsistency, complexity and burdensome processes for the verification of eligibility at institutions as well as high variability in the services provided (both type and quality) amongst institutions are barriers and reinforce the medical model's focus on disability documentation required to properly label or categorize the disabled student: the medical diagnosis and the medical providers interpretation of the functional impact of that diagnosis (Kim and Lee 2016; Kimball 2016).

Despite those barriers, the student perception of the accommodations provided by disability service programs is generally positive and considered by students to be

essential to their persistence in higher education. However, students often question the

effectiveness of the programs and logistics of the accommodations provided (Getzel and

Thoma 2008; Kendall 2016; Kimball et al. 2016). Specifically, students report lack of

clarity with procedures and the practical limitations of the DS offices' ability to

administer the services. Kimball et al. outline some examples: "taking tests with

accommodations away from the standard exam administration, which makes it difficult or

impossible to seek clarification about unclear exam items; unreliable means of

identifying competent note takers in a timely manner; and unclear administrative

processes for declaring disability status and requesting accommodations" (2016:110).

There have been studies analyzing the effectiveness of academic accommodations. In

their 2011 study, Mamiseishvili and Koch found accommodations to be effective in

relation to first to second year persistence. They found students who utilized reasonable

accommodations in their first year were more likely to persist into the second year than

those who did not utilize accommodations. Lombardi et al. (2012) found that first

generation college students were more likely to utilize reasonable accommodations but

did not find significant association between the use of accommodation and changes in

grade point average (GPA). Finally, Kim and Lee (2016) found changes in GPA related

to testing accommodations, specifically additional time and modified testing materials

indicating that these things can improve test scores. However, they found that course

accommodations including material modification and adjustments have a lesser positive

impact on GPA.

Universal Design Service Model

The service model associated with the social model of disability is Universal

Design (UD). The National Disability Authority (NDA) utilizes the definition of UD

from Ireland's Disability Act 2005:

1. The design and composition of an environment so that it may be accessed, understood and used
   i. To the greatest possible extent
   ii. In the most independent and natural manner possible
   iii. In the widest possible range of situations
   iv. Without the need for adaptation, modification, assistive devices or specialized solutions, by any persons of any age or size or having any particular physical, sensory, mental health or intellectual ability or disability and
2. Means, in relation to electronic systems, any electronics-based process of creating products, services or systems so they may be used by any person.

One of the most straight-forward examples of UD is the curb cut. The curb cut,

designed for people who use wheelchairs or with mobility disabilities, has also proven

useful and beneficial for many others: the elderly population, parents pushing children in

strollers, and people using the sidewalks for recreation like cycling, skateboarding and

rollerblading. This flexibility in use and inclusivity for all is a shift from the reactive

nature of the accommodations model of service.

Table 4: Principles of Universal Design for Instruction, by Sally S. Scott, Joan M. McGuire, and Stan F. Shaw.

Principle	Definition
Principle 1: Equitable use	Instruction is designed to be useful to and accessible by people with diverse abilities. Provide the same means of use for all students, identical whenever possible, equivalent when not.
Principle 2: Flexibility in use	Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use.
Principle 3: Simple and Intuitive	Instruction is designed in a straightforward and predictable manner, regardless of the student's experience, knowledge, language skills, or current concentration level. Eliminate unnecessary complexity.
Principle 4: Perceptible information	Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student's sensory abilities.
Principle 5: Tolerance for error	Instruction anticipates variation in individual student learning pace and prerequisite skills.
Principle 6: Low physical effort	Instruction is designed to minimize nonessential physical effort in order to allow maximum attention to learning. Note: This principle does not apply when physical effort is integral to essential requirements of a course.
Principle 7: Size and space for approach and use	Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student's body size, posture, mobility and communication needs.
Principle 8: A community of learners	The instructional environment promotes interaction and communication among students and between students and faculty.
Principle 9: Instructional climate	Instruction is designed to be welcoming and inclusive. High expectations are espoused for all students.

Source: Principles of Universal Design for Instruction, by Sally S. Scott, Joan M. McGuire, and Stan F. Shaw.
Storrs: University of Connecticut, Center on Postsecondary Education and Disability. Copyright 2001. Reprinted with permission.

The UD approach seeks to create inclusive learning environments through a lens of social justice and aims to reduce the need for accommodation, or service provision that retrofits university environments specifically for disabled students (Longmore 2003; Loewen and Pollard 2010) by proactively planning for a variety of learners when designing instruction (McGuire and Scott 2006). (See the Principles of Universal Design for Instruction in Table 4). "Once this switch to viewing inclusion as a social justice issue is achieved, we will create an opportunity for disabled persons to embrace a clear

and prideful identity and have a greater chance to realize the participatory democracy in higher education with maximum independence" (Loewen and Pollard 2010:14). With UD, accommodations are built into the curriculum during the design to account for the learning differences of all students regardless of disability. Belch (2004) outlines four principles: 1.) Classroom materials must be diverse, 2.) students with disabilities are not considered "other" but are incorporated into the student body as a diverse group of learners, 3.) curriculum should be designed with all students in mind 4.) flexibility with instruction and course materials is essential to account for *all* learners.

UD reduces the need for accommodating and singling out students. Without the need for providing disability documentation, disclosing personal disability information and engaging in a process that creates barriers for disabled students and promotes segregation and limited participation, UD alleviates the need for disabled students in higher education to seek DS office support and brings the service model more into line with the civil rights and social justice spirit of the ADA (Belch 2004; Guzman and Balcazar 2010; Loewen and Pollard 2010). Late sociologist Irving Zola (1989/2005) supported the concepts of Universal Design in higher education before it formally existed, emphasizing that disability does not lie solely with the individual nor solely with society/the environment, rather, that all individuals function within a spectrum and, "reframing disability through policies and that provide the greatest level of flexibility possible should prevent the marginalization of individuals falling at the lower end of the ability spectrum" (Guzman and Balcazar, 2010:50).

In their 2013 study, Davis et al. suggest that disabled students stand to benefit the most from UD particularly because universally designed environments can account for

disabled students who choose to not disclose their disabilities at the higher education level. Davis et al. (2013) measured the effectiveness of UD as an intervention in higher education. Similarly to the provision of reasonable accommodation, this study showed that instructor knowledge and efficacy around UD provision increased student engagement and enthusiasm for the curriculum. Belonging, engagement and self-determination are major contributing factors for disabled colleges students' success (Belch 2004; Getzel and Thoma 2008; Hadley 2006; Kendall 2016). "The concept of universal design embodies both notions of involvement and engagement" (Belch 2004:12). Because of the involvement with instructional design, faculty are the primary audience for implementation UD (McGuire and Scott 2006). Within this service model, the role of the DS office is to help frame the social model of disability for faculty so that they begin to recognize the disabling features of the classroom environment or instruction. Further, DS professionals can collaborate with faculty with ideas about how to provide instructional access for students (McGuire and Scott 2006) while becoming a model of UD within their own policies, procedures and practices. The DS office will be the "model for universal design and social response to disability" (Thornton and Downs 2010:77) for the institution at large. Additionally, all students who participate in environments that practice UD are impacted, at least indirectly, to see what an effective environment looks like that is inclusive of many different types of individuals, which has the potential to reframe how they create and interact in their work environments once they complete their degree.

One purpose of this study was to inform a shift in disability service delivery, policy and practice from the medical model of disability to the social model. There is

evidence to support this purpose within the context of my research questions: 1.) What are the educational trends in student success and disability resource utilization at a mid-sized 4-year institution amongst disabled students? 1a.) What do the trends suggest in regard to building on research related to the medical vs. the social model of disability resource programming? 2.) Are there identifying factors outside of accommodation that account for disabled student success? 3.) Do academic accommodations impact student success? According to prior research, a service model that focuses solely on the individual and the provision of accommodations tends to produce barriers for disabled students while not yielding higher levels of success. However, the Universal Design service approach, which focuses on disabled student's identity and inclusion, supports alternative factors that contribute to disabled student success including belonging, engagement, self-determination, self-efficacy and faculty familiarity with disability. In the next sections, I aim to identify connections between a mid-sized disability service (DS) program's available resources and delivery with student success.

This DS program utilizes an individual, accommodations-based approach, but has also been incorporating elements of a social approach. For example, while accommodation provision is still the foundation of the service model, the DS program has implemented a name change for the office removing the words 'support' and 'service' from the name and replacing them with 'resource' and 'center' to indicate that the office is a resource for campus, largely faculty, rather than a support specifically to "help" disabled students. The name change shifted the locus of disability to the campus community rather than the individual. Further, the office has implemented a Faculty Ambassador program and incorporated specialized trainings for faculty to discuss

disability within the context of the social model and increase awareness about accommodations and the implementation of Universal Design into their classrooms. However, these trainings are optional and historically poorly attended by faculty. For students, workshops are offered through the Understanding and Navigating Inclusion Through Education (UNITE) cohort program targeted to increase disability awareness and help increase understanding of disability as identity and as an aspect of equity and inclusion. Finally, the office has evaluated syllabi statements, policies and procedures within their program to remove language that is focused on the individual or creates unnecessary barriers for disabled students. One large implementation of this is moving from a paper to a digital format for the traditional intake process and accommodation provision. This change took place in the fall 2018 semester. In the digital format, the students can request accommodations and notify faculty by logging into an online portal, reducing the need for face to face requests and disclosure of disability which is a notable barrier for disabled students in higher education.

The accommodations approach is examined by looking at specific accommodations provided and whether students are active or inactive with the program. An 'active' student is one who has completed all steps to disclose their disability and register with the DS program *and* has requested an accommodation letter within that term. An 'inactive' student has disclosed their disability and registered with the DS office but did not request an accommodation letter for that term. The social approach is examined by analyzing factors within the descriptive statistics such as student class level and major college. I will use those descriptive factors to draw conclusions about disabled student's self-efficacy, inclusion and sense of belonging.

CHAPTER III

METHODOLOGY

METHODOLOGY BACKGROUND

This research was approved by the Institutional Review Board on December 16, 2019. The research and analysis was a quantitative, non-experimental, repeated panel longitudinal study design approach to study the effects of disability services on student success. I analyzed secondary data collected from a disability service program at a mid-sized four-year institution located in the Western United States. Data include individual level student characteristics as well as institutional and program data. The disability service program model includes provision of academic accommodations but has also begun to incorproate some elements of the social model of disability in it's approach to program policy, procedure and service delivery. In order to begin to disecting the effectiveness of each service model, medical and social, I aimed to identify any relationships between components of each model in terms of significant relationships. The independent variable for the medical model was specific accommodations used and whether the disabled students were active or inactive with the disability office. Conceptually, the medical model focuses on the individual impairment and the need to adapt or modify the higher education learning environment for that individual, rather than designing the learning environment to be accessible for all. Accommodations are modifications or adjustments to the environment or delivery of curriculum and therefore are a good representation of the program's service provision that is rooted in the medical

model. Additionally, as discussed in the review of literature, the very existence of the DS office in it's current structure, as a service delivery office rather than an identity based center, focuses on ameliorating barriers from individual impairment and represents the medical model. For additional factors, descriptive statistics from the available data were analyzed to identify compelling control variables. Student class level, major college and disability category were among those identified. The focus of the social model is to identify and remove barriers for disabled students to enjoy full inclusion of university programs, services, activities, and facilities offered with minimal or no intervention required by the student. Examining the above factors may provide context for some of those barriers. For this study, "success" was measured by term and cumulative grade point average (GPA). The purpose of the study was to:

- identify trends in disability resource utilization at a mid-sized 4-year institution amongst disabled students and to build on the current research
- inform a shift in disability resource policy and practice from the medical to the social model
- guide institutional reform to include a focus on universally designed campus practices

PROCEDURES

The secondary data was collected for four terms; fall 2018, spring 2019, summer 2019, and fall 2019. The summer 2019 panel was eliminated from the study due to notable discrepancies in sample size compared to the other three panels. The sample sizes for each panel are as follows: Fall 2018, N=714, Spring 2019, N=631 and Fall 2019,

N=682. The data included student information from students who disclosed a disability with the disabiltiy service office at the institution.

Two data sources were utilized. First, the disability service office uses student manangement software for specific program use. The software is called Accessible Information Management (AIM). The AIM data collected included information regarding specific disability information, the active or inactive status of the students and whether or not they utilized specific accommodations. Available services, modifications and accommodations were categorized into the following groups: Accessible Instruction Materials, Alternative Formats, Alternative Testing, Classroom Environment Modifications, Modified Course Participation, Deaf and Hard of Hearing Services, Accommodations for Internships, Clinicals, or Practicums, Note-taking, Student Heatlth Information and Other.

The rest of the data was collected through the Institutional Reporting and Analysis (IRAS) services at the institution. This information included: cumulative and term GPA, number of credits taken, student level (graduate or undergraduate), student class (freshman, sophomore, junior, senior or graduate student), graduation and withdrawl status and major college. AIM and IRAS data were merged into a complete data set for each term for a total of three complete panels. The merged data set was then modified to include only those students who were active for at least two of the three terms to assess the number of students who opted in to continuing to receive services beyond one semester. The data sets were exported to SPSS where I analyzed both univariate and multivariate statistics within each panel to identify emergent patterns and trends. The final sample sizes and descriptives for each panel are shown in Tables 5, 6, and 7.

Table 5: Demographics for Fall 2018

DRC Status	# of Students	% of Students	Major	# of Students	% of Students
Active	620	(85.8%)	Education and Behavioral Sciences	224	(31%)
Inactive	94	(13%)	Humanities and Social Sciences	122	(16.9%)
Mode:	Active		College of Business	42	(5.8%)
			Natural and Health Sciences	205	(28.4%)
Cumulative GPA			Performing and Visual Arts	80	(11.1%)
Mean:	3.06		Non-Degree Seeking	40	(5.5%)
			Mode:	Education and Behavioral Sciences	
Term GPA					
Mean:	2.57				
Term Credits			**Reason for Withdrawal**	# of Students	% of Students
Mean:	12.3		Academic Appeal	8	(1.1%)
			Dean of Students	5	(0.7%)
Student Level	# of Students	% of Students	Reason Not Given	21	(2.9%)
Undergraduate	616	(85.2%)	*Mode: Reason Not Given*		
Graduate	98	(13.6%)			
Mode:	Undergraduate				
Student Class Level	# of Students	% of Students	**Disability Category**	# of Students	% of Students
Freshman	111	(15.4%)	General Disability	15	(2.1%)
Sophomore	123	(17.0%)	Autism Spectrum Disorder	26	(3.6%)
Junior	143	(19.8%)	Physical/Medical Disability	155	(21.4%)
Senior	238	(32.9%)	Speech Language Disorder	2	(0.3%)
Graduate	98	(13.6%)	Learning Disability	127	(17.6%)
Mode:	Senior		Attention Deficit Hyperactivity Disorder	124	(17.2%)
			Blind/Low Vision	15	(2.1%)
Graduation Status	# of Students	% of Students	Deaf/Hard of Hearing	27	(3.7%)
Not Graduated	696	(96.3%)	Brain Injury	11	(1.5%)
Graduated	27	(3.7%)	Psychological Disability	205	(28.4%)
Mode:	Not Graduated		*Mode*:	Psychological Disability	

Table 6 Demographics for Spring 2019

DRC Status	# of Students	% of Students	Major	# of Students	% of Students
Active	562	(87.9%)	Education and Behavioral Sciences	201	(31.5%)
Inactive	69	(10.8%)	Humanities and Social Sciences	122	(19.1%)
Mode:	Active		College of Business	42	(6.6%)
			Natural and Health Sciences	189	(29.6%)
Cumulative GPA			Performing and Visual Arts	68	(10.6%)
Mean:	3.08		Non-Degree Seeking	9	(1.4%)
			Mode:	Education and Behavioral Sciences	
Term GPA					
Mean:	2.83				

Term Credits			Reason for Withdrawal	# of Students	% of Students
Mean:	13.47		Academic Appeal	5	(0.8%)
			Dean of Students	3	(0.5%)
Student Level	# of Students	% of Students	Reason Not Given	21	(3.3%)
Undergraduate	546	(85.4%)	*Mode: Reason Not Given*		
Graduate	85	(13.3%)			
Mode:	Undergraduate				

Student Class Level	# of Students	% of Students	Disability Category	# of Students	% of Students
Freshman	65	(10.2%)	General Disability	20	(3.1%)
Sophomore	107	(16.7%)	Autism Spectrum Disorder	22	(3.4%)
Junior	143	(22.4%)	Physical/Medical Disability	156	(24.4%)
Senior	231	(36.2%)	Speech Language Disorder	0	(0.0%)
Graduate	85	(13.3%)	Learning Disability	103	16.1%)
Mode:	Senior		Attention Deficit Hyperactivity Disorder	107	(16.7%)
			Blind/Low Vision	14	(2.2%)
Graduation Status	# of Students	% of Students	Deaf/Hard of Hearing	26	(4.1%)
Not Graduated	580	(90.8%)	Brain Injury	10	(1.6%)
Graduated	59	(9.2%)	Psychological Disability	168	(26.3%)
Mode:	Not Graduated		*Mode*:	Psychological Disability	

Table 7 Demographics for Fall 2019

DRC Status	# of Students	% of Students	Major	# of Students	% of Students
Active	632	(91.6%)	Education and Behavioral Sciences	217	(31.4%)
Inactive	50	(7.2%)	Humanities and Social Sciences	128	(18.6%)
Mode:	Active		College of Business	49	(7.1%)
			Natural and Health Sciences	187	(27.1%)
Cumulative GPA			Performing and Visual Arts	83	(12%)
Mean:	3.08		Non-Degree Seeking	17	(2.5%)
			Mode:	Education and Behavioral Sciences	
Term GPA					
Mean:	2.84				
Term Credits			**Reason for Withdrawal**	# of Students	% of Students
Mean:	13.5		Academic Appeal	7	(1%)
			Dean of Students	0	(0%)
Student Level	# of Students	% of Students	Reason Not Given	17	(2.5%)
Undergraduate	589	(85.4%)	*Mode: Reason Not Given*		
Graduate	93	(13.5%)			
Mode:	Undergraduate				
Student Class Level	# of Students	% of Students	**Disability Category**	# of Students	% of Students
Freshman	113	(16.4%)	General Disability	25	(3.6%)
Sophomore	115	(16.7%)	Autism Spectrum Disorder	26	(3.8%)
Junior	127	(18.4%)	Physical/Medical Disability	168	(24.3%)
Senior	234	(33.9%)	Speech Language Disorder	0	(0%)
Graduate	93	(13.5%)	Learning Disability	108	(15.7%)
Mode:	Senior		Attention Deficit Hyperactivity Disorder	111	(16.1%)
			Blind/Low Vision	15	(2.2%)
Graduation Status	# of Students	% of Students	Deaf/Hard of Hearing	27	(3.9%)
Not Graduated	656	(95.1%)	Brain Injury	10	(1.4%)
Graduated	34	(4.9%)	Psychological Disability	187	(27.1%)
Mode:	Not Graduated		*Mode:*	Psychological Disability	

The descriptive statistics for this project play an integral role in identifying context and possible narratives for barriers to success experienced by disabled students at the university. The next section presents those findings, as well as, analysis of the data to address the research questions explored for this project.

CHAPTER IV

ANALYSIS

In order to undertand the impact of disability resources on student success, I conducted a series of analyses. The first analysis addresses trends and changes in descriptive data over three semesters regarding active use of the DS program and student success in order to assess trends in use of resources and center utilization. Trends are assessed using descriptive statistics from Tables 5, 6, and 7. These tables present information regarding how many students were active and inactive, student short term (term GPA) and long term (cumulative GPA) success, and information regarding student status and other characteristics.

Q1   What are the educational trends in student success and disability resource utilization at a mid-sized 4-year institution amongst disabled students?

I assessed the overall trends in academic success for students registered with the DS program. Descriptive results indicate that disabled students who reported to the DS office maintain relatively successful academic GPA levels across all semester panels for both cumulative (long term) and term GPA (short term). The cumulative GPA for students on the program is consistently >3.0 and term GPA is consistently >2.5. Furthermore, a majority of the students remained active in the DRC for at least two of the three semesters (roughly 73% of the students were active in at least two semesters).

Of the students who registered with the DS program, 85.8% of them remained active on the program during fall 2018, 87.9% during spring 2019 and 91.6% during fall 2019, despite not consistently utilizing specific accommodations. In other words, over the

three semesters, active use of the program grew consistently. Further, in the fall of 2018, the DS office shifted to an online service delivery model for registering for services and disclosing to faculty. The small but steady percentage increase in active students across fall 2018, spring 2019 and fall 2019 supports the research that shows that registering with the DS program and disclosing their disabilities to faculty may create barriers disabled students in higher education. When that barriers are removed, as with the implementation of the online service delivery, we see more students remain active with the program. This barrier may be more significant for first-year students who have not yet gained the self-advocacy skills necessary at the college level. This is discussed further in the subsequent paragraphs.

Q1a   What do the trends suggest in regard to building on research related to the medical vs. the social model of disability resource programming?

The most common disabilities that are reported by students registered with the DS program include psychological disabilities (26-27%), followed by physical/medical disabilities (21-24%) and Learning Disabilities (15.7-17%) or ADHD (16-17%). The least common disabilities included those relating to speech, vision, or hearing loss and autism spectrum disorder (all under 5%). This yields interesting information for the DS program on which types of medical, social, or universal design programming to focus on for the broadest impact on the needs of students based on trends in representation.

Regarding undergraduate representation, use is most frequent by upperclassmen. Freshman and sophomore students are the lowest represented groups of undergraduates. The data shows gradual growth in representation by juniors and seniors, who make up the largest percentage of undergraduate students in the DS program. Finally, graduate students make up roughly 13% of DS students, while undergraduate students represent

the majority of DRC students. In other words, when isolating undergraduate students for the analysis, more students utilize the program as they progress through their higher education experience. DS students are also typically full-time, with the average number of credit hours enrolled being between 12.3 and 13.5.

After gaining a better understanding of the general trends in representation of and use of services by students at the DS program, I wanted to assess whether factors, such as student major, had an impact on academic success for those students. I was particularly interested in this analysis considering the differences in representation of students across academic colleges. These analyses relate to my second research question, which was as follows:

Q2   Are there identifying factors outside of accommodation that account for disabled student success?

H1   Accommodations will have a positive impact on academic success, even when accounting for student major and student classification level.

To further assess factors other than use of accommodations, I analyzed student class level with academic success by running a one-way analysis of variance (ANOVA) for both term and cumulative GPA using student class level as the factor (see Tables 8 and 9). The results indicate that first year students across the spring 2019 and fall 2019 panels had significantly lower GPAs, both term and cumulative, when compared to the subsequent class years. This could be an interesting demographic with which to consider persistence in a future study. Prior research shows that from the students' perception, success in higher education hinges on utilizing all services and resources available as early as possible (Kendall 2016). Additionally, this data supports research that accessing DS programs in higher education and utilizing accommodations is confusing and stigmatizing for first year students who would rather not connect with their disability as

an identity due to stigma (Barnard-Brak et al. 2010; Kimball et al. 2016; Kruse and Oswal 2018), which can impact success and further supports a shift to the social model of disability. The findings that freshman are least represented in terms of utilization of services as well as term and cumulative GPA suggest a need to further understand how to best reach out to and serve these students.

Table 8: Multiple comparisons of Academic Success Across Student Class Level, Spring 2019

(I) Category	(J) Category	Mean Difference (I-J)	SE
Cumulative GPA: Freshman	Sophomore	-.387*	.101
	Junior	-.374*	.096
	Senior	-.497*	.094
Term GPA: Freshman	Sophomore	-.494*	.140
	Junior	-.497*	.133
	Senior	-.629*	.130
*p≤ 0.05 **p≤ 0.01			

Table 9: Multiple comparisons of Academic Success Across Student Class Level, Fall 2019

(I) Category	(J) Category	Mean Difference (I-J)	SE
Cumulative GPA: Freshman	Sophomore	-.828*	.164
	Junior	-.811*	.161
	Senior	-.964*	.156
Term GPA: Freshman	Sophomore	-.775*	.267
	Junior	-.687	.264
	Senior	-.950*	.259
*p≤ 0.05 **p≤ 0.01			

There are also interesting differences in student representation across various colleges at the university. The college of Education and Behavioral Sciences consistently had the greatest number of students registered with the DS program (around 30%) followed closely by the college of Natural and Health Sciences. The college with the least students represented on the program was the College of Business, which consistently only had 6-7% of all students registered with the program. Important to note is that representation from this college is increasing, although is still much lower than other

colleges. These differences in college representation were important, therefore I next analyze college differences in depth.

To further investigate my second research question, I ran a one-way analysis of variance (ANOVA) for cumulative GPA using the colleges as the factors. This analysis yielded interesting results showing that there is a significant mean difference in GPA between colleges. Tables 10, 11 and 12 which show the Tukey Post-Hoc tests for each semester panel, indicate that in the fall of 2018, the college of Education and Behavioral Science (EBS) shows significantly higher cumulative GPA when compared to Humanities and Social Sciences (HSS), the college of Business, and Natural Health Sciences (NHS). The college of Business shows overall lower GPAs when compared to all other colleges, but the results were significant when compared to Education and Behavioral Science and Performing and Visual Arts (PVA) in the fall 2018 panel. While the college of Business continues to show overall lower cumulative GPA across the spring 2019 and fall 2019 panels and lower representation in overall students at the DRC, the results are only significant compared to the college of EBS in the Spring 2019 panel.

Table 10: Multiple comparisons of Academic Success Across Academic College, Fall 2018

(I) Category	(J) Category	Mean Difference (I-J)	SE
Educational and Behavioral Sciences	Humanities and Social Sciences	.251*	.086
	College of Business	.618*	.129
	Natural and Health Sciences	.277*	.074
	Performing and Visual Arts	.164	.100
	Non-Degree Seeking	.136	.133
College of Business	Educational and Behavioral Sciences	-.618*	.129
	Humanities and Social Sciences	-.367	.137
	Natural and Health Sciences	-.341	.130
	Performing and Visual Arts	-.454*	.146
	Non-Degree Seeking	-.482	.170

*p≤ 0.05 **p≤ 0.01

Table 11: Multiple comparisons of Academic Success Across Academic College, Spring 2019

(I) Category	(J) Category	Mean Difference (I-J)	SE
Educational and Behavioral Sciences	Humanities and Social Sciences	.302*	.085
	College of Business	.495*	.126
	Natural and Health Sciences	.302*	.075
	Performing and Visual Arts	.164	.104
	Non-Degree Seeking	-.130	.253
College of Business	Educational and Behavioral Sciences	-.495*	.126
	Humanities and Social Sciences	-.192	.132
	Natural and Health Sciences	-.192	.126
	Performing and Visual Arts	-.330	.145
	Non-Degree Seeking	-.626	.272

*$p \leq 0.05$ **$p \leq 0.01$

Table 12: Multiple comparisons of Academic Success Across Academic College, Fall 2019

(I) Category	(J) Category	Mean Dif. (I-J)	SE
Educational and Behavioral Sciences	Humanities and Social Sciences	.328*	.088
	College of Business	.223	.125
	Natural and Health Sciences	.223	.079
	Performing and Visual Arts	.088	.103
	Non-Degree Seeking	-.236	.200
College of Business	Educational and Behavioral Sciences	-.223	.125
	Humanities and Social Sciences	.105	.133
	Natural and Health Sciences	.000	.127
	Performing and Visual Arts	-.134	.143
	Non-Degree Seeking	-.459	.223

*$p \leq 0.05$ **$p \leq 0.01$

These results could indicate that further exploration into the college of Education and Behavioral Sciences and the college of Business could have benefits for identifying what is and is not working for disabled students in these programs. Specific questions that arise from this include; 1) Why are students more likely to seek degrees from majors in EBS and less likely to pursue business majors? 2) Why do EBS students at the DS office have significantly higher GPAs while business students have significantly lower GPAs? 3) Are there differences across colleges in utilization of the DS office's faculty

resources? and 4) Can the DS office use this information to better inform center trainings and programming and to target the faculty and students who could most benefit?

One initial hypothesis would be that faculty acumen around disability and accommodations is either higher or lower within each of those colleges respectively. Other interesting questions from these results might ask whether the college of EBS have already adopted tenets of Universal Design as part of their pedagogy or perhaps the college of Business more narrowly tailors their pedagogy to the minimum accommodations to ensure legality. These findings provide valid justification for additional exploration related to these questions and could identify academic areas where additional training and resources are provided to faculty.

My final research question addresses the direct impact that academic accommodations have on student success. Are there differences in both short term and long-term success between active and inactive students? In other words, does active involvement in the DS program have a positive relationship with academic success and are there discernable relationships between particular types of accommodations and student success? These questions are addressed in the following analyses for research question 3, stated as follows:

Q3:   Do academic accommodations impact student success?

    H1   Active use of specific accommodations will have a positive association with academic success.

I first used Pearson correlations to determine if there was any association between grade point average (GPA) and the use of specific accommodations for each semester, fall 2018, spring 2019 and fall 2019. Neither term nor cumulative GPA yielded substantive or significant relationships with specific use of any accommodations offered

by the DS program with the exception of the notetaking accommodation. Notetaking

showed a significant but negative association across all three panels for both term and

cumulative GPA. This finding aligns with topical conversations within professional

disability in higher education groups regarding the effectiveness of peer notetaking and

whether possible alternatives could be more impactful for student success. Investigation

into notetaking as an accommodation is discussed further as a recommendation for the

DS program and results are included in Appendix B. However, the purpose of this study

was to determine whether specific accommodation use had a positive impact on student

success. Therefore, it can be concluded that use of accommodations had no positive

relationship with student success as measured by GPA in any of the panels.

> H2: Students who are active with the disability service office will show higher
> levels of success than those who are inactive with the program.

Next, I assessed whether or not active involvement in the DS office was

associated with academic success. In other words, do students who are actively using the

program have greater academic success than those who are not active with the office

regardless of the type of accommodation? To test this, I conducted independent samples

t-tests for each academic semester where I compared mean term and cumulative GPA

between active and inactive disabled students. Table 13 shows that there is a significant

association between the mean GPA for active vs. inactive students utilizing the program

across all 3 panels. In the fall of 2018 panel, the mean difference in GPA between active

and inactive students is 1.59 and is significant at the .01 level. Spring 2019 yielded a

mean GPA difference of 1.0 and is significant at the .01 level and Fall 2019 had a mean

GPA difference of .42 and is significant at the .05 level. These findings indicate that

active participation with the DS program is significantly associated with higher GPA.

This finding is interesting, especially considering the previous result that specific accommodations are not associated with academic success. This begs the question, why is active participation in the program positively associated with academic success, even when specific accommodations seem to not have meaningful effects?

Table 13: Mean Differences in Term GPA by DS Program Active Status

	Active		Inactive		
	M	SD	M	SD	*t*-test
Fall 2018	2.93	1.15	0.134	0.651	*22.66**
Spring 2019	2.94	1.12	1.94	1.75	*6.51**
Fall 2019	2.87	1.19	2.45	1.76	*2.27*
*p≤ 0.05 **p≤ 0.01*					

The much larger t-test numbers for fall 2018 and spring 2019 indicate a larger difference in means, however, this could also be an indicator in problematic data collection within the disability services program and Institutional Reporting and Analysis Services. The AIM data within the program is entered by staff members and is then communicated with IRAS to obtain GPA and other institutional data. AIM was new software for the program in the fall of 2018 and there were inconsistencies in the data collection which may have slightly skewed the active and inactive numbers during the first academic year of implementation (fall 2018 and spring 2019). This is discussed further in the recommendations. The university and DS program should investigate data entry and communication procedures in order to obtain the most valid and reliable data to inform growth and change within the office and it's programming for disabled students.

Results for the independent t-tests suggest that active participation with the DS program is positively associated with academic success (term GPA). Because of the lack of findings described earlier that specific accommodation use has a significant impact on GPA, one can conclude that there are other factors that contribute to disabled student success. Initial thoughts are that there are other more traditional factors of student success

to consider such as, student self-efficacy, self-advocacy, inclusion and sense of belonging, all factors that support service delivery through the social model of disability. Determining those specific factors would be a suggested area for further research.

Finally, I wanted to assess the relationship between active participation and accommodations with GPA by controlling for the significant impact of year in school. Therefore, I ran a series of multiple regressions. The results of these regressions are in Table 14. I ran the same regression for each of the three panels of data to assess trends per semester and changes over time. In each regression, the dependent variable is term GPA and the independent variables are active participation in the DRC and the two most common accommodations used by students (alternative testing and peer notetaking).Year in school and academic college are control variables, with freshman and educational and behavioral sciences serving as the reference categories. The three models show results of a multiple regression of the impact of active status and two of the most frequently used accommodations on term GPA across the three semesters, controlling for year in school and academic college. Because of the significant results from the bivariate analysis related to year in school and major academic college, I wanted to test for any possible spurious relationships between GPA and active use of the disability service office or GPA and specific accommodation use. Model 1 shows the results for fall 2018, model 2 shows the results for spring 2019, and model 3 shows the results for fall 2019.

Table 14: Multiple Regression Results for Variables Predicting Term GPA Across 3 Semesters

	Fall 2018			Spring 2019			Fall 2019		
	B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Constant	.06	.18		.99**	.22		1.45**	.23	
Active Participation	2.60**	.14	.61	.97**	.16	.25	.52**	.18	.11
Alternative Testing	.43**	.10	.15	.39**	.11	.15	.50**	.11	.20
Notetaking	-.24*	.12	-.06	.00	.13	.00	-.20	.13	-.07
Sophomore	.31*	.14	.08	.82**	.18	.25	.67**	.16	.20
Junior	.39**	.14	.11	.94**	.18	.32	.82**	.16	.26
Senior	.42**	.13	.14	1.21**	.17	.47	.93**	.14	.36
Graduate	.42**	.16	.10	1.12**	.20	.31	1.04**	.18	.29
HSS	-.26*	.12	-.07	-.09	.14	-.03	.02	.14	.01
Business	-.59**	.18	-.10	-.37*	.20	-.07	.03	.19	.01
NHS	-.35**	.11	-.11	-.29*	.12	-.11	-.13	.12	-.05
PVA	-.14	.14	-.03	-.14	.17	-.03	.26	.16	.07
Non-Degree	-.36	.22	-.06	1.17**	.40	.11	.59*	.31	.07
N	707			629			678		
Adjusted R²	.45			.15			.09		
F-Test	49.64**			10.45**			6.44**		

*p ≤ 0.05   **p ≤ 0.01

The models support hypothesis one for research question two: Accommodations will have a positive impact on academic success even when controlling for major college and year in school. When controlling for other factors, freshman consistently have lower GPA than sophomores, juniors, seniors and graduate students. The regression coefficients are positive and noted is a gradual increase in GPA with each class level, re-establishing that more years in school yields higher GPA. This is similar to the bivariate analysis, supporting the hypothesis that accommodations will have a positive effect on GPA, but that first-year students are less likely to seek resources from the disability service office. Participation with the office and GPA increase for each subsequent year in school, suggesting that the services are effective in supporting student success. When considering college major, although not as strong as the bivariate associations, the models still show that there is a modest relationship between major college and GPA; NHS and business have lower GPA than EBS.

Hypothesis one for research question three predicts that the active use of *specific* accommodations will have a positive association with GPA. These models partially support this hypothesis. The two most commonly requested accommodations by students who use the disability service office are alternative testing and peer notetaking services. When controlling for other factors, alternative testing showed a positive and significant relationship with term GPA over the three semesters. This is contrary to the correlational data and may be explained by an increase in test scores for the specific term in which the testing accommodations were used, similar to the research conducted by Kim and Lee (2016). Those researchers also had similar findings to this project which show that while testing accommodations are effective, there may still be other variables which impact

student GPA more than the specific use of accommodations overall. Peer notetaking showed no significant association with GPA outside of fall 2018 in which a negative association (B=0.24; p<0.05) was found. One explanation for this may be the implementation of the online service delivery during that semester which changed the notetaking accommodation delivery. Established students on the program may have experienced difficulty with understanding and accessing the new delivery platform which may have negatively impacted GPA in that semester.

Overall, these models support hypothesis two for research question three which predicts that students who actively use the disability service office will show higher GPA over students who do not actively use the program. Active status at the DS office is positively associated with term GPA even when controlling for accommodation use, year in school, and academic college. Active participants in the spring 2019 had a nearly full point GPA increase (B=.097; p<0.01) over students who reported a disability to the office but were not active with the program. Fall 2019 results are similar with a roughly half point increase (B=0.52; p<0.01) for active students compared to inactive disabled students.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

DISCUSSION AND RECOMMENDATIONS

The number of disabled students pursuing a college education has been on the rise since the passing of the Vocational Rehabilitation Act (1973) and the Americans with Disabilities Act (1990). Simultaneously, attention to equity and inclusion has increased on college campuses. Despite this, disability service models at institutions of higher education largely fail to recognize disability identity as a part of equity and inclusion efforts on campuses and have not evolved their service models to best meet the needs of disabled students in this way. The goal of this study was to evaluate a disability service office at a mid-sized institution to determine the effectiveness of academic accommodations, as well as, to explore better ways for the institution to address the advancing identity-based needs of the growing disabled population on campus.

I intended to identify trends within a disability services program to uncover factors that may contribute to student success outside of the traditional accommodation model which could inform a shift in disability resource policy and practice at the institution.

The first research question addressed general trends in the representation of students and utilization of services offered by a disability resource center and a mid-sized university. Findings suggests that in general psychological disabilities (26-27%) are the most prevalent group, followed by physical/medical disabilities (21-24%), learning

disabilities (15.7-17%) and ADHD (16-17%) represented in the DS office and active

participation in the DS program increased with each year of school. Further, the college

of Educational and Behavioral Sciences had the largest percentage of disabled students

across all three panels (31%, 31.5%, 31.4% respectively) while the college of Business

showed the lowest representation of disabled students (5.8%, 6.6%, 7.1% respectively).

Finally, students who are active with the DS office recorded relatively successful GPA

across all panels: cumulative GPA is >3.0 and term GPA is >2.5. Because more than 60%

of the students represented with the DS program have nonvisible disabilities

(psychological disabilities, *some* medical disabilities, learning disabilities, and ADHD)

combined with the literature which showed that faculty attitudes around nonvisible

disabilities and their belief that accommodations provided students with and unfair

advantage had an impact on whether students choose to disclose their disabilities and

utilize services (Loewen and Pollard 2010), one recommendation would be for the DS

office to adopt the social model and universal design by allocating resources toward

providing consistent, targeted training on the social model of disability so that faculty can

begin to recognize barriers that may exist in their attitudes, beliefs and instruction.

Faculty in the Business college could be targeted due to the lower representation of

disabled students and lower GPA in this college. To take this one step further, the DS

office could offer follow-up workshops showing faculty how to apply universally

designed learning principles to their curriculum and incorporate them into their overall

pedagogy. Understanding that most faculty are experts in their content areas and *not*

pedagogy, the DS program's role should shift from a service provision model to one that

provides education and resources to faculty for designing curriculum that follows the

tenets of Universal Design for Learning (UDL). Higher education is generally not responsive to diverse learning styles. UDL applied to university curriculum provides awareness and anticipation of those learning styles and can benefit all students by making the curriculum inherently accessible and reducing the need for disclosure and gatekeeping by the disability services programs and faculty. Some effective instructional strategies could include establishing clear expectations, providing advanced organizers, presenting the materials in multiple formats, choosing textbooks that are available in multiple formats, giving frequent and formative feedback and using a variety of assessment strategies.

The descriptive findings also led to analyses related to how major and student classification are associated with success. Findings indicated that first year students had consistently lower cumulative and term GPA than sophomores, juniors and seniors. This supports the literature which that early adoption of accommodations increases student success (Kendall 2016) but that first-year students are less likely to pursue these services due to confusing processes and stigma (Barnard-Brak et al. 2010; Kimball et al. 2016; Kruse and Oswal 2018). Because of this, it is recommended that the DS program evaluate their policies and procedures through a social model lens to identify potential barriers to entry for first-year students. Additionally, alternative outreach initiatives should be explored for recruitment of first-year students beyond New Student Orientation. One suggestion might be to request that social justice minded, identity-based informational materials about the DS office resources be included with information sent to students by their major college. Receiving this information directly from their major college could reduce uncertainty around stigma for the students. This could be particularly impactful

for first year students entering the Business college as the mean GPA for students in this college was lower across all panels and significantly lower compared with students in Educational and Behavioral Sciences.

When assessing whether or not academic accommodations had an impact on student success, my research suggests that it is not specific accommodations that impact success. Rather, the participation in the DS program was the meaningful variable. In terms of participation in a disability service program, the accommodations provided and means of accessing those services are products of the medical model of disability. Proponents of the medical model argue that these services and accommodations are effective in impacting student success. However, the findings from this research do not support this. In fact, my hypothesis that active use of specific accommodations would have a positive association with academic success, was overall not supported regardless of the type of accommodation. The lack of significance between specific use of accommodations and GPA is a significant finding as it supports prior research in the social and universal design literature. Lombardi, Murray and Gerdes (2012) found that while some students were more likely to utilize accommodations than others, there is not a significant improvement in GPA due to the use of accommodations.

Kim and Lee (2016) found that test accommodations can help improve test scores, however modifications to curriculum, course materials and course adjustments have a lesser impact on GPA. This study had similar findings. Hypothesis 2: students who actively use accommodations will show higher levels of success than those who do not actively use accommodations, support the Universal Design approach. This study found significant mean difference between active vs. inactive students on the program which

indicates that simply participating in the program yields positive results for disabled student success. Loewen and Pollard (2010) find that campus inclusion for disabled students create increased participatory opportunity, sense of belonging and self-efficacy. These are all factors of student success promoted by the social justice model of disability. Future research at this university should incorporate a way to measure sense of belonging and self-efficacy to further explore if this is the mechanism that is producing the results of the current study.

The second research question which asks whether there are identifying factors outside of accommodation that account for disabled student success, supports a shift to the social model for disability service delivery in higher education. The findings do not support the hypothesis that accommodations will have a positive impact on academic success. The lack of findings regarding use of specific accommodations and the relationship between active enrollment of students support implementation of the social model of disability and universal design. Student participation with the DS program reinforces the research that students will find success in higher education when they develop a sense of belonging and inclusion.

Regarding success across year in school, the significant mean differences in GPA for first-year students when compared to subsequent class years supports prior research. Mamiseishvili and Koch (2011) found interesting connections between academic accommodations and first to second year persistence in their study. Namely, that an increased use of accommodation resulted in higher persistence to the second year. Their conclusions, combined with the findings of this study related to academic class, provide

an interesting defense to pursue further research in the area of persistence and retention within the scope of the medical and social models.

The final analysis which accounted for major college supports the need for further investigation into academic colleges and faculty self-efficacy around disability and disability service provision. In prior research, faculty perceptiveness was an important indicator of persistence and success for *both* models of service provision. Overall, the results of this project provide empirical justification for making a shift in disability service provision in higher education to reflect a social model of disability over a medical model of disability.

LIMITATIONS

There are several limitations to this study. First, the data available for this project may include some collection discrepancies. The program data used was collected by various staff members within the DS office and entered manually into the DS office software database program. This may have resulted in some inaccuracy in coding. I attempted to ameliorate this limitation by cleaning and recategorizing the data as accurately as possible. Further the graduation and withdrawal data provided by IRAS was not comprehensive and could only account for students who did graduate or withdrawal. There is no additional institutional data that might account for other reasons for student attrition. Knowing this information could provide more accurate information for further study. Moreover, I was not able to control for the characteristics of students who do choose to disclose their disabilities to the program. These students may already have a higher aptitude for self-advocacy and autonomy which are characteristics that can account for student success.

Another limitation of the study is that I was originally hoping to capture information regarding disabled student retention, however due to the data restrictions above, I did not have enough information to accomplish that goal within the scope of this project and while I could have scratched the surface on issues with disabled student retention within the scope of this project it is truly a topic worthy of its own research. These limitations are also recommendations to the DS program. Specific data collection within the program should be evaluated and updated to reflect information that will best benefit the program. More communication with IRAS about the DS specific data needs could also benefit the program. Lastly, using GPA as the only measurement of success has some flaws. At this particular institution there is no consistency between colleges for using a plus/minus system for grading. The use of plus/minus varies from college to college and instructors have carte blanche over deciding when to assign a plus or a minus to a grade and there is no consistent scale for GPA when doing so. While it is a measurement that is available and adequate as a tool for determining success, to fully consider what makes students successful in higher education, GPA should be compared with non-disabled peers and overall retention rates within the colleges. GPA should also be just one of many factors for a more robust analysis in future studies.

The multiple regression analysis highlighted a couple of areas for additional recommendations. One is that the DS office should evaluate the peer notetaking accommodation for effectiveness and look into possible alternatives, including technology options. Reevaluating this service fits seamlessly with the vision to shift from the medical to the social models of disability services. There is a myriad of technology (applications and software programs) available which allow disabled students the ability

to participate in their own notetaking rather than relying on a peer note taker. When students engage in their own learning, the social model-based factors that contribute to success are activated: engagement, autonomy, and self-efficacy. Students no longer need to rely on others for their notetaking and are actively engaged with the content. They are autonomous and remain in control of their own learning and gaining the skill to succeed on their own increases their self-efficacy as they move forward in their academic careers. Further research controlling for these more traditional factors related to college success, including the above, plus peer and family support, cost of college attendance and degree aspirations should be pursued.

The inability to conduct this research through a fully intersectional lens was a final but major limitation. To fully understand disability as a social construction, we must consider its role within the intersections of class, race, gender, sexual orientation, socio-economic status and age. This data was omitted from the project due to time and resource restrictions and could not be incorporated into the overall scope of the project. I was not granted access to the IRAS data for these factors. This limited access is an area of recommendation to the university to collect and make available this information which is crucial to understanding student success. Without it, research conducted at this university will reflect only pieces of the complex puzzle that can explain student success and retention for all students.

Despite these limitations, the results of this project provide empirical validation that show that a shift from a medical to a social model of disability benefit disabled students and can inform both program and institutional policy and practice changes.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

DATE:	December 16, 2019
TO:	Rebecca Smith
FROM:	University of Northern Colorado (UNCO) IRB
PROJECT TITLE:	[1528539-1] Examining the Impact of Disability Resources on Student Success and Retention
SUBMISSION TYPE:	New Project
ACTION:	APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE:	December 16, 2019
EXPIRATION DATE:	December 16, 2023

Thank you for your submission of New Project materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Nicole Morse at 970-351-1910 or nicole.morse@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

APPENDIX B

PEARSON'S CORRELATIONS FOR SPECIFIC
ACCOMMODATIONS AND TERM AND
CUMULATIVE GPA.

	Fall 2018		Spring 2019		Fall 2019	
	Term GPA	Cum GPA	Term GPA	Cum GPA	Term GPA	Cum GPA
	r	r	r	r	r	r
Alt. Testing	.035	.045	.033	-.004	.029	-.002
Accessible Instructional Materials	-.005	.009	.024	-.006	-.017	.000
Alt. Formats	-.085	-.086	-.060	-.038	-.079	-.090
Classroom Environment	.049	.046	.049	.069	.085	.093*
Course Participation	.000	.022	.006	-.005	-.002	-.026
Deaf and Hard of Hearing Services	-.068	-.027	.054	.059	.041	.063
Notetaking	-.104*	-.115*	-.081	-.096*	-.123*	-.118*
Other	-.006	-.011	.049	.024	.043	.033
Student Health Information	.028	.044	.033	.015	.016	.017

*$p \leq 0.05$ **$p \leq 0.01$